RAILWAY AGE

The "Menace of Over-Production"

Since the beginning of the industrial era somewhat more than a century ago, the unemployment caused by every business depression has been used as evidence that the increased use of machinery has been causing overproduction, that production in excess of the needs and demands of consumers has been throwing thousands or millions of persons out of employment, and that chronic unemployment can be prevented only by restricting the use of machinery, or reducing working hours, or by the adoption of both these means. Meantime, after every depression the use of machinery, production and employment have further increased. The theory that the present depression and unemployment, like those of the past, have been largely or mainly caused by overproduction resulting from the use of improved machinery is being exploited especially on the authority of "Technocracy," which is described as "a functional organization of engineers which has been studying our industrial and agricultural complex for more than a decade."

Was Average Income Too Large?

It is pointed out by Technocracy that machines were recently installed which produce from 2,500 to 2,600 cigarettes a minute, compared with the previous maximum of 500 to 600 cigarettes a minute. In pig iron production, it is said, one man working one hour can do what it took 650 hours for one man to accomplish fifty years ago. A plant in Milwaukee is cited with a daily output capacity of 10,000 automobile chassis frames and 34 miles of pipe line, with a total of 208 men in the plant. The citation of such facts seems to be causing widespread alarm. If all the necessities and luxuries required by mankind are to be produced by a few workers employed eight hours a day a vast majority of workers will have no work, and those who have no work will have no purchasing power. It would appear, therefore, that owing to the great efficiency attained in this machine age, there is danger of producing so much that almost everybody will have to go hungry, naked and without shelter because, without incomes, the many cannot buy what the few can produce.

Isolated and perhaps extreme illustrations of productive capacity are less convincing than facts regarding industry as a whole. How do such illustrations square with the readily ascertainable facts regarding increases in production, in commerce and in incomes that actually have occurred, especially in the recent years of prosperity? The year 1929 was the year of largest production in the history of the United States. The total national income in that year was estimated at $90,000,000,000, or an average of about $730 per inhabitant. Assuming 4.3 persons per family, the average family had an income of about $3,140 which it could spend in buying the products of industry. It seems reasonable to assume that if the average family had had an income twice as large, or about $6,300, and prices had been the same, it would have bought twice as large a quantity of the products of industry as it did. There was not much unemployment in 1929. It would seem, therefore, that if there had been twice as much effective demand for goods as there was there would have been no unemployment. But the effective demand for goods was limited to the purchasing power of the average income of $730 per capita.

Why was there not some more income? The national income is derived from producing, transporting and merchandising goods and from financing their production, transportation and sale. There were not larger incomes and more purchasing power because there was not more producing, transporting, merchandising and financing. If the industry of the country had any such potential productive capacity as Technocracy claims, there must have been a lack of balance in production, or faults in the systems of production, transportation, merchandising and financing, which prevented the people from having incomes sufficient to buy all that industry could have produced.

The Actual Increase in Production

There recently has been published by the National Bureau of Economic Research a very interesting volume entitled "Economic Tendencies in the United States," which has been written by Dr. Frederick C. Mills. This book throws much light on the increases of

production that actually occurred in the seven years ending with 1929, and, also, upon a lack of balance in industry which existed, and which probably largely accounts for the failure of the purchasing power of the people as a whole to increase more during this period, and in some measure at least accounts for the depression by which the nation has been overwhelmed since 1929.

Between 1901 and 1913, according to Dr. Mills, the average annual increase in production per capita was 1.1 per cent, while from 1922 to 1929 it was 2.4 per cent. Population increased less rapidly in the years following than in the years preceding the war. Disregarding population, the average annual increase in the national volume of production in the years 1901-1913 was 3.1 per cent and in the years 1922-1929, 3.8 per cent. As these figures show, there clearly was a greater increase relatively in the volume of production in the period immediately following the war than in the period immediately preceding it.

The difference between the rates of increase in the two periods was, however, much smaller than the illustrations given by Technocracy would lead the unwary to believe. The average annual increase in the production of agricultural products and other raw materials was 2½ per cent and in the production of manufactured goods 4½ per cent, showing the well-known tendency of the growth of manufacturing industries to exceed the growth of other industries. The average output per worker in manufacturing establishments increased 22 per cent in 1929 over 1923, or at the annual rate of 3.3 per cent. It is significant that the average increase in the ton-mileage output of the railways per employee during the same period was 20 per cent.

From 1919 to 1929, Dr. Mills shows, average output per worker in the manufacturing industries increased 43 per cent. Inasmuch as there is a tendency for spokesmen of certain manufacturing industries to imply that the increase of efficiency on the railways has not kept pace with the increase of efficiency in manufacturing, it is worth while to call attention to a fact that Dr. Mills does not mention, viz., that the increase in output of ton-miles per railway employee between 1919 and 1929 was 42.6 per cent, or almost exactly the same as the increase in output per employee in the manufacturing industries. The annual rate of increase in output per employee in manufacturing was 3.8 per cent, while in the 15 year period from 1899 to 1914 it was only 1.7 per cent.

Maladjustments in Purchasing Power

The evidence that output per worker increased relatively more in the years following the war than in the years preceding it is conclusive. The increase of 43 per cent in output per worker in both manufacturing and railroading in the ten years ending with 1929 was surely not sufficient, however, to justify alarm lest the productive capacity of machinery has been increasing so rapidly that the continuance of the increase will cause chronic and general unemployment. Nor can it be readily believed that the average income per family of about $3,140 in 1929 was so large that further increases in annual production per capita in future will threaten the American people with a greater abundance of necessities and luxuries than they will cheerfully buy and use if able to do so.

Every sane student of economics believes that there was not "general over-production" in the United States, or the threat of it, in the period of prosperity that ended in 1929, but that there was unbalanced production, and uneconomic distribution of the national income, and that these were among the contributing causes of the present depression. Professor Mills's cold and orderly presentation of data throws light upon some of the maladjustments that existed and increased. For example, he shows that throughout this period there prevailed maladjustments between the prices received by farmers and other producers of other raw materials, on the one side, and the prices received by manufacturers, on the other side. The result of this maladjustment was to restrict the power of farmers and other producers of raw materials to buy the products of manufacturers, and, as producers of raw materials are a very large part of the total population, this restriction of their purchasing power probably was the principal cause of the so-called "over-production" in many industries, which was in reality in large measure or mainly a lack of effective demand for their products from people who gladly would have bought more of their products if they had been able to do so.

Six-Hour Day at Eight Hours' Pay

What does this suggest regarding some plans that are now being advanced for the reduction of unemployment in such industries as railroading and manufacturing, and particularly for the establishment of a six-hour working day with eight hours pay? Obviously, it suggests that the adoption of such plans, because of their tendency to increase costs, rates and prices on the railroads and in the manufacturing industry, would tend to maintain or increase the maladjustment in the economic relations between farmers and other producers of raw materials, on the one hand, and transporters and manufacturers, on the other hand.

The Interstate Commerce Commission has just estimated that, on the basis of 1930 experience, the establishment of a six-hour day at eight hours pay on the railways would require the employment of 300,000 to 350,000 additional men and increase operating expenses approximately $630,000,000 a year. Theoretically, such an increase in operating expenses would make it necessary for the railways to increase the freight rates that farmers and other producers of raw materials must pay, which would further impair the ability of such producers to buy manufactured products. As a prac-

tical matter, under present and prospective conditions, railway traffic could not bear the advance in rates that would be required to offset the increase in operating expenses, and, consequently, the establishment of a six-hour day at eight hours pay would simply complete the bankruptcy of the railway industry without increasing railway employment. Likewise, the adoption of any policies to reduce unemployment in the manufacturing industries that would increase their costs of production would tend further to reduce the ability of a large part of the country's population to buy their products, and to perpetuate both the so-called "over-production" and the very real unemployment in those industries.

In spite of the views of Technocracy, there is nothing in experience to warrant the belief that there is danger of general over-production. Well balanced increases in production and well-balanced distribution of the incomes from production increase the necessities and luxuries of all kinds that all classes of the people can have and enjoy. There is no average family in the United States which would not welcome a doubling, trebling or quadrupling of the buying power of its 1929 income, or that would not spend most of its increased income for such goods, services and pleasures as those who had more than the average income did spend their incomes for in 1929. That the problem of rapidly increasing production has been so largely solved is a promise, not a menace. The menace is in the fact that so little progress has been or is being made in solving the great problem of so balancing the purchasing power of all classes of producers as to enable each of them to buy continuously the products of the others. This needed balancing of purchasing power is not going to be accomplished by adopting methods or policies which will increase existing maladjustments between the purchasing power of such classes as the producers of raw materials, on the one hand, and the producers of manufactured goods, on the other hand.

The Problem of Corrosion

Many problems remain unsolved because they have existed for so long that they are regarded as insoluble. Such a problem is that of metallic corrosion. It is important to every user of steel, and of special importance to the railways, for they are the country's largest users of iron and steel products, taking nearly 20 per cent of the output of the mills in normal years. Their purchases normally exceed seven million tons annually, involving an outlay of more than $500,000,000. Furthermore, unlike the automobile and other industries, most of their iron and steel goes into applications where maximum life is desired, as in rails, bridges, track fastenings, cars, etc. To the extent that corrosion exerts a destructive and limiting influence on the life of such metal, its effect upon expenses is very direct.

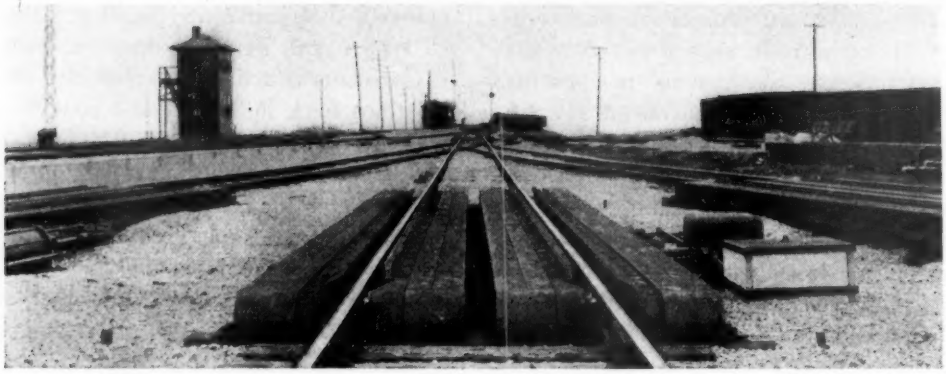
Corrosion is active wherever iron or steel is exposed to atmospheric influences, and conditions upon the railways are particularly acute. The gases discharged from the stacks of steam locomotives add an agency of corrosion which intensifies the normal atmospheric attacks on railway and other nearby structures. Again, the cinders discharged from the stacks of locomotives fall on the roofs of stations and other nearby buildings where they collect in the gutters and downspouts and, accentuated by moisture, become very active corrosive agents.

Corrosion is also becoming an increasingly important factor in freight car maintenance, as freight cars are being built more and more largely of steel. Especially severe, however, are the attacks on open-top cars employed in the transportation of coal. Normally a third of the total traffic of the railroads consists of coal, and nearly 40 per cent of their total freight car equipment is employed primarily in the transportation of this commodity, largely bituminous coal. This coal, when exposed to rain and snow, is particularly destructive to the bottoms and sides of cars, with the result that these parts normally fail from corrosion and their premature renewal is necessitated.

Still another form of corrosion is that to which the tracks and the decks of bridges are subjected by the dripping of brine from refrigerator cars. This form of destruction is intensified as the traffic in perishables requiring low temperatures is increasing. On roads carrying heavy volumes of such traffic, track fastenings are destroyed in half the normal life secured elsewhere, while the inroads on bridges are illustrated by the fact that a single road is now completing a program of bridge repair and renewal involving the expenditure of more than $1,000,000, made necessary solely by this form of corrosion on a limited mileage of its system.

These are merely a few of the many ways in which corrosion is attacking metal wherever it is used. Its attacks are constant and never-ending. The results constitute a drain on railway income that runs into the tens of millions of dollars annually. It has been going on since the railways first began to employ metal. It will continue until science finds the answer.

This is a problem that demands concerted study by the railways. It warrants first of all the evaluation of the damage by appropriate investigation by the Engineering and Mechanical divisions of the American Railway Association. The determination of these losses, when completed, will provide such striking figures as to make evident the necessity for concentrated attack on the problem. Such an evaluation will also provide a basis whereby a road can determine the point beyond which it becomes economical to substitute material with greater resistance to corrosion or protective coatings of demonstrated inhibitive properties—a field in which only the beginning of investigation has yet been made.



Looking Toward the Hump, a Single Retarder in the Foreground—Tower A at Left

Modernizing a Large Gravity Yard

Other terminals relieved of switching, many economies effected and traffic accelerated by revision of facilities and the installation of car retarders at Galesburg

ALTHOUGH its classification facilities at Galesburg, Ill., were constructed less than 25 years ago and were then considered the last word in yard design, changes in yard operating practices since that time have warranted the Chicago, Burlington & Quincy in approving an expenditure of $5,000,000 for enlarging and modernizing these facilities, of which $3,000,000 has been spent in the last three years. During the period since these facilities were constructed, the pressure for accelerated movement of freight traffic and the insistent need for greater economy in operation have brought about almost revolutionary changes in many practices on this road as on others.

Since Galesburg yard has been a well-designed and well-operated gravity yard during the past 25 years, the Burlington could justify the expenditure necessary to revise these facilities only through demonstrated quicker handling and reduced cost of switching. The plans for revision, therefore, incorporate car retarders and other incidental aids to switching on the two humps, one for eastbound and the other for westbound traffic.

It was recognized that only a part of the potential benefits from the investment would be realized if the influence of the improved methods, which were the objectives of the revision, was to be confined to Galesburg. Likewise, it was recognized that there was a minimum number of cars that could be handled daily if the investment was to pay a satisfactory return. On the other hand, it was as fully recognized that as the number handled daily increased, the cost per car for switching would decrease progressively until the capacity of the yard is reached.

Accordingly, train classification was given thorough study from a system standpoint with a view to concentrating at Galesburg as much of the switching as practicable and thus relieve other points of this burden. As a result of this study, it became evident that the existing yard was of ample size and that its operating characteristics were well able to take care of the traffic with the practices that were being followed. This study also disclosed that by revising the facilities at Galesburg and at the same time by harmonizing the practices elsewhere on the system, a sufficient saving could be made in yard operations at other points as well as at Galesburg, in per diem and in other costs to justify the investment necessary for the project.

Galesburg Is Hub of Converging Lines

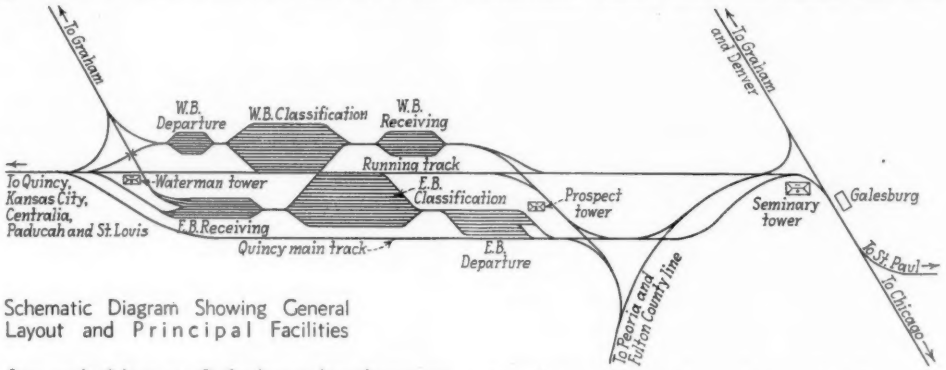
Galesburg is 162 miles west of Chicago on the main line between Chicago and Denver. Other lines enter from Peoria; from West Havana and the Fulton County coal fields of Central Illinois; from Paducah, Ky., and the Southern Illinois coal fields; from St. Louis; from Quincy and Kansas City; and from St. Paul. Between Galesburg and these principal terminals are other large centers and a net work of branch lines, the traffic to and from which flows through Galesburg over these main routes.

It was formerly the practice to classify only the "shorts" and locals and send all cars destined to or beyond the next district terminal to that terminal, either unclassified or only partly grouped. This necessitated the complete reswitching of every train at all district yards and at terminals. This practice was improved considerably when the original hump yard was constructed at Galesburg, since gravity switching permitted a wider range of classifications to be made than was practicable with the former method of flat switching, and cars were then grouped for more distant destinations.

Prior to the revision of the facilities at Galesburg, outgoing cars originating at Chicago, or received from connections in the Chicago district, were classified at a large terminal yard at Clyde in the outskirts of that city for many of the destinations to which other traffic through Galesburg was routed. Likewise, a large amount of classification switching was being done in the coal fields and at other terminals for traffic that was destined to points beyond Galesburg, since it was impracticable to make all desirable groupings at Galesburg yard.

It was developed by the study that both time and

expense could be saved and the operation as a whole improved by sending all cars going to or beyond Galesburg to that point for primary classification. By doing this, much reswitching is being avoided, less time is lost in holding trains for full tonnage at the various terminals and at Galesburg, while it has been demonstrated that the cost per car for switching at Galesburg has been reduced by 50 per cent. The present practice is to dispatch unclassified trains from all terminals and large centers whenever there is enough tonnage to make a train. Obviously, cars for local delivery and diverging routes at intermediate points must be switched at these terminals or at intermediate yards. In addition to the trains dispatched from the several terminals, a considerable volume of business moves into Galesburg, which originates at or is received in interchange at these intermediate points.

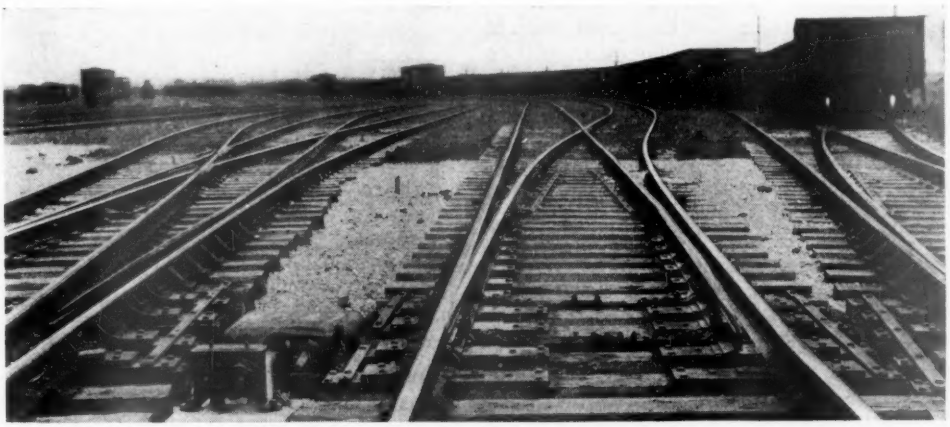


Schematic Diagram Showing General Layout and Principal Facilities

All cars leaving Galesburg are assembled in the trains in such manner that they can be set out, if they are destined to intermediate points, with the least delay to the train and also so that when the train arrives at destination, the cars can be handled to connecting lines or for local delivery with a minimum amount of switching. No solid trains are made up for any destination except those going to the coal fields. Experience has shown that making up trains in this manner for these distant destinations not only relieves the intermediate terminals from the burden of a large amount of switching, but it also reduces materially the time required to move the traffic by keeping it out of these yards, thus reducing the per diem charges. There is also a noticeable decrease in damage to cars and lading as a result of less frequent switching, while a still further reduction in this damage is obtained through the easier handling which the car retarders permit. There has also been a corresponding decrease in personal injuries to yard employees.

When the gravity yard was constructed 25 years ago, 21 classification tracks were sufficient for grouping the traffic for each direction. Since that time this feature of operation has increased in complexity, while the revisions of methods which were made to obtain full benefit from the investment also added to the number of classifications, until at present a great number of groupings are required. To illustrate the number of classifications which must be made for the numerous destinations, those for the main line to Denver will be enumerated. These include locals to Burlington, with two special groupings, one for Monmouth and another for interchange with the Minneapolis & St. Louis at that point; Burlington, with special groupings for city delivery, for the Ft. Madison-Keokuk line of the Burlington and for locals and "shorts" (branch-line and interchange cars) to Ottumwa; Ottumwa, including locals and shorts to Creston; Creston, including locals and shorts to Pacific Junction; Pacific Junction, Sioux City and locals to Lincoln; Council Bluffs, including city deliveries and interchange with the Union Pacific; Omaha, which is made up of merchandise for city delivery at freight houses, team tracks and industries, and cars for South Omaha; Lincoln, including one group for city delivery, another for the line north to Billings and a third for the west, including the Casper line; Sidney, for interchange with the Union Pacific; Denver, which includes groups for city deliveries and for interchange with individual connecting lines.

Eastbound on this same line, classifications are made in the same manner for Galva, Kewanee, Buda, Zearing, LaSalle, Mendota, Aurora, Congress Park and Eola, the latter being for interchange with the Elgin, Aurora & Joliet. Cars in these classifications are subdivided into groups in the same manner as those west of Galesburg. The special groupings for Aurora include the Chicago, Aurora & Elgin, mostly coal, the Savanna line, time freight and dead freight. The latter two groups are still further subdivided into cars for local industries and for the freight house, including team-track cars. There are three groups for Congress Park, the interchange point with the Indiana Harbor Belt.



View Showing Arrangement of Lap and Single Switches

Eight classifications are made for Chicago: Union Stockyards—stock, meat and the Omaha Packing Company; perishable for Taylor Street delivery yard and for other delivery points; time freight, dead freight and empties. It is also planned that in the near future classifications will be added for the lumber district and for the interchange with the Belt Railway. Comparable switching and separation are being done for each of the other routes, as for instance, 17 classifications and 25 groupings for the St. Paul line.

Principles Underlying Present Operating Practices

Details of the classifications and special groupings which are being made for this particular main route out of Galesburg have been given for two reasons. They are also stated as current practice, although not all of them were in effect before the revision of the yard was undertaken. Some have been developed to meet the requirements of the traffic and operating demands which were disclosed by the studies that were made, and others to take advantage of the economies which the new yard made possible. One reason for going into detail was to illustrate some of the problems incident to the design of the yard. The other was to disclose the principles underlying the operating practices on this road and to show their application to the design and operation of the yard.

Study of the classifications and groupings that have been described discloses a fundamental purpose to do as much of the detail switching as possible at Galesburg. Through trains which require no switching enroute are made up and sent to distant terminals. These cars are so grouped that only a minor amount of switching is necessary in making deliveries at destination to connecting lines, to industries and to freight houses and team tracks. Other cars are grouped in the proper sequence and sent to intermediate points where they are put into trains for local distribution or diversion at junction points with a minimum of switching or none. Likewise, still other groups are arranged for interchange and city deliveries in the larger towns with a view to reducing the local switching to a minimum. In the reverse direction, cars are assembled into trains in no particular order and sent to Galesburg for separation and classification.

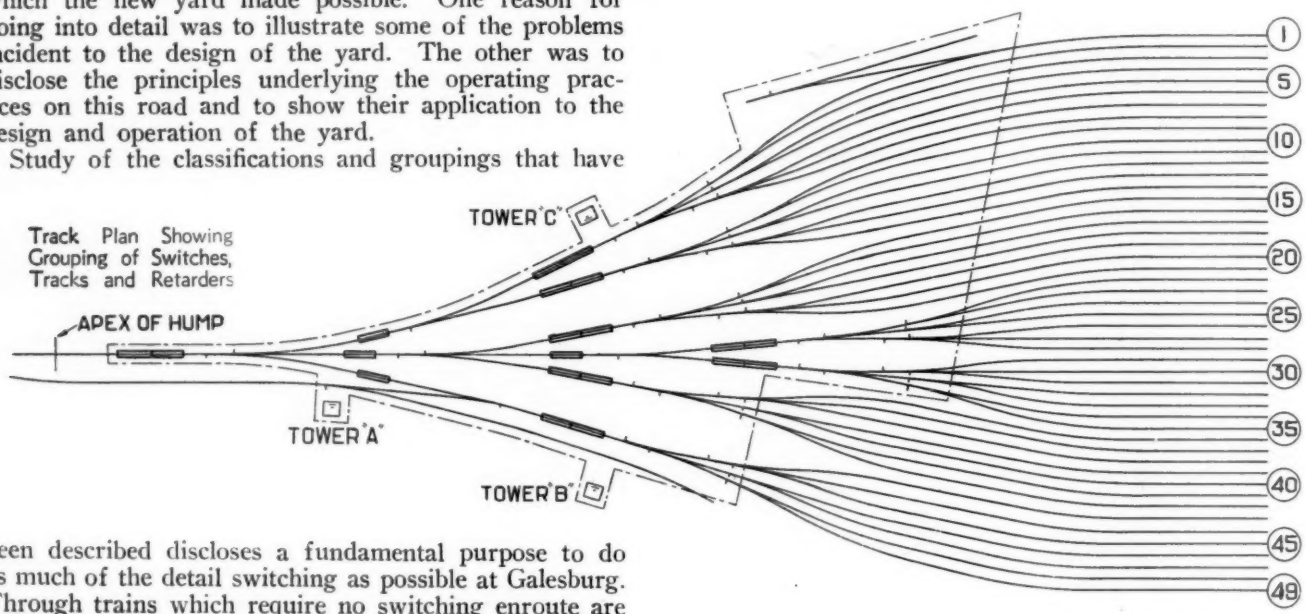
Another fact is disclosed by the details that were enumerated. It is evident that an effort is also being made to reduce the amount of switching at the larger terminals of this road, for instance, Chicago. Already, much of the switching has been eliminated on westbound traffic out of Clyde. A definite start has also been made toward transferring to Galesburg the work of classifying cars for Chicago deliveries, not only to relieve the terminal yard of this burden but to reduce the time required for making deliveries. Furthermore, this practice decreases the total amount of switching that must be done.

Galesburg is favorably situated in another respect. Roughly, under normal conditions of traffic, the volume of business is about equal in both directions. Under these conditions, an average of 100 trains enter and leave the yard in 24 hr., handling 3,600 cars (actual count). At the peak, this traffic ranged from 4,000 to 4,300 cars. At present, this has been reduced until the movement ranges from 1,800 to 2,500 cars. Approximately 50 per cent of all trains in and out are scheduled, the remainder moving on irregular schedules. The line through Beardstown to Centralia, the concentration point for the Southern Illinois coal fields, and Paducah is the only one without definite time schedules, although two trains a day are scheduled each way. The unusually efficient operating practices on this line were described on page 315 of the *Railway Age* for February 7, 1931.

Problems Involved in Developing Design

This outline indicates the special problems involved in the development of the plan for the yard. The most prominent of these were to provide ample room for a large number of classifications, to develop a plan that would require a minimum time for the passage of cars through the yard, to provide facilities that would reduce the cost per car for switching to a minimum and to arrange the component units so as to give easy access to the many main lines which center at this point. The latter requirement was made easier of solution by the fact that the new yard is located substantially on the site of the former facility.

Track Plan Showing Grouping of Switches, Tracks and Retarders



While the plan as developed provides for substantially duplicate facilities for eastbound and westbound traffic, for reasons which will be explained, the revision of the eastbound units only has been completed at this time. Therefore, only these units and their operation will be described. The yard lies south of the Chicago-Denver main line, which at this point runs northeast and southwest. The connections from this line to the north end of the yard are located immediately west of the passenger station, as is the junction with the Peoria and the Fulton County lines and the Quincy line.

The axis of the yard is nearly north and south and is coincident with the original main track of the Quincy-Kansas City line, which has been relocated to pass to the east of the yard. The Peoria and Fulton County lines (trains from the latter run over the Peoria line for

a short distance) enter the yard at its north end by means of a wye which connects with the Quincy main track, the eastbound forwarding yard and the westbound receiving yard. Likewise, trains from St. Louis and Centralia run over the Quincy line to Bushnell, while the St. Paul line joins the Chicago line immediately east of Galesburg and reaches the yard over this route.

Since the yard lies approximately north and south, the south end is five miles south of the Chicago-Denver line, to which a double track connection was constructed from the south end of the yard when the original yard was built in 1907. This connection, known as the Graham Cutoff, runs east and west and joins the main tracks at Graham, eight miles west of Galesburg. It is used by incoming eastbound and outgoing westbound trains, these movements being controlled, as are those on the Quincy line, by an interlocking at the south end of the yard, known as Waterman Tower.

The receiving yard consists of 9 tracks, 8 of which hold 125 cars and the remaining one 100 cars. Three of these tracks connect at the south end independently with the Graham Cutoff, five with the Quincy line and one is connected to both. The most easterly track is in direct line with the hump, while the others reach the hump through two ladders, one for each group. Between the hump and the ladders, two thoroughfare tracks, one on each side of the classification yard, connect into the lead to the hump, to permit quick release of the locomotives from incoming trains.

The classification yard contains 49 tracks holding from 17 to 35 cars. The forwarding yard comprises 11 tracks, 6 holding 100 cars and 5 holding 125 cars. This yard is laid out in two groups with independent ladders at each end. Until the westbound units are completed, the yard will have a capacity of 8,000 cars. No unusual features were involved in the design of the receiving and forwarding yards except the independent ladders which facilitate the movement of trains from and to the several main lines, which can thus be made simultaneously without interference.

Classification Yard Designed for Fast Switching

On the other hand, the classification yard includes several unusual features of design. It has been pointed out that one objective of the design was to reduce to a minimum the time required for switching. As a means to this end, the 49 tracks in this unit were laid out in seven groups of seven tracks each. Each of these primary groups is a part of one of three major groups which are connected with the hump by three principal routes which subdivide as necessary to reach the primary groups.

To reduce the time lost in the movement of cars to the most remote tracks and to insure that cars switched to all tracks will have sufficient momentum to roll quickly into the clear, a system of lap switches was worked out, which shortened the ladders and principal leads to such an extent that the distance from the crest of the hump to the most remote switch is only 1,000 ft., while the distance to the entrance of 35 of the tracks is 800 ft. or less. This feature insures a quick clearance of all cars, and experience has demonstrated that this is an unusually "fast" hump; yet at no time is the speed of the cars greater than is common practice in hump switching. As a further precaution, the leaving ends of the tracks in this yard are on a sharp up grade to insure that the cars will stop without the use of skates or the setting of brakes.

Special plans were prepared for both the lap and the single switches, the designs being standardized to facilitate the original assembly and later maintenance. These plans showed the length of every rail and the location of all insulated joints and were used for cutting at the mill where the rails were cut, drilled and marked. In this way the turnouts were quickly assembled without confusion. The hump tracks and leads were laid with 100-lb. rail on ties that were treated with zinc-meta-arsenite, and they were ballasted with washed gravel. The surface was then covered with several inches of white pea gravel to give maximum illumination by the floodlighting system.

In designing the hump, special study was given to the gradients, particularly in view of the compact arrangement of the divergent routes and ladders leading from

Looking Toward the Hump—Trimmer Signals in Foreground

the hump, to insure that they were properly co-ordinated with the car retarders. The crest of the hump is 16 ft. above the lowest point in the classification yard. The initial gradient is 4 per cent to insure a quick separation of the cuts. This flattens to 3 per cent through the first retarder and then decreases progressively to about 0.4 per cent through the classification turnouts and reversing curves. The body tracks throughout this yard are on 0.23 per cent descending gradients, with from 300 to 500 ft. of level track and the final sharply ascending grade.

Ample Retardation Provided

There are 12 car-retarder locations, 8 of which are double and 4 single, a total of 20 retarders. Since each unit is 38.5 ft. long, there are 770 track feet of retardation on the hump. The arrangement is such that every car moving down from the hump must move through five retarders or 192.5 ft. of retardation before it enters its assigned track. This is said to be the least amount of retardation that has, up to this time, been installed for gravity switching.

All switches are power-operated by means of direct-acting electro-pneumatic switch machines. With a working air pressure of 60 lb., they can be thrown in one second. All switch fittings conform to the standards for the road. Each switch is equipped with a two-color, two-direction electric switch lamp, showing yellow for normal position, the left-hand route, and red for the right-hand route.

All movements over the hump are controlled by color-light signals which, in turn, are manually-controlled from the crest of the hump. The hump indications are repeated at 1,000-ft. intervals throughout the length of the receiving yard. The colors and their indications are as follows: Red, stop; yellow, hump slowly; green, hump fast; yellow and red, hump at medium speed; red and

red, back up. Because of the width of the classification yard, two trimmer signals were installed with spread lenses which make them visible from any point in the classification yard. A green indication in these signals means to trim; a red indication, stop trimming.

At the crest of the hump is a building 13 ft. by 28 ft. for the convenience of the humpmaster and crew. In it are all of the facilities for communication, including a teletype receiving machine, a loud speaker, a loud-speaker transmitter and telephones for general communication. A loud speaker and transmitter, and the controls for the hump and trimmer signals are outside the building. The building also contains a locker and washroom and an independent hot-water heating plant.

Both the retarders and the switches for the diverging routes leading from the hump are controlled from three towers. Tower A is the control point for the first retarder, the three intermediate retarders and seven switches. Towers B and C control the remaining retarders and switches for the diverging routes, each one handling approximately one-half of the yard. A total of 20 retarders and 52 switches are controlled from these three towers.

Compressed air at 90 lb. for the operation of the retarders and switch machines is obtained from a central compressor plant located at the car shop approximately a mile from the hump. Storage tanks are provided at the delivery end of the transmission pipe, of sufficient capacity to insure a uniform pressure when the hump is working to capacity. To prevent interference by frost, the air is passed through air-cooled condensers before it is delivered to the switch and retarder machines. The electro-pneumatic interlocking at Waterman Tower receives its supply of air from the tie-treating plant which is located on the Graham Cutoff about one-half mile west of the tower.

Telephones are provided at all strategic points for general communication. A loud-speaker system is provided between the hump office and the control towers. Additional telephones connected with this system, but without loud speakers, are located at the telegraph office, and at three points near the south end of the classification yard. The telegraph office is in the yard office, with an operator on duty continuously.

A Type-15 teletype sending machine is located in the telegraph office, and similar receiving machines are placed in the hump office and control towers. Pneumatic messenger tubes run to the yard office from Waterman Tower, from the ice house and from a station at the throat between the classification and departure yards.

Switch Lists and Bills

Trains passing Waterman Tower throw off the bills which are sent to the yard office by the messenger tube. This line is 9,600 ft. long and requires 4½ min. for transmission. The switch list is made immediately on the teletype for the towers and hump office, with duplicate copies for the switchmen and the humpmaster. These lists show the destination of each car, and before humping is started, the humpmaster marks on his list the track to which each car is to be switched, and gives this information to the operators in the towers. When assembled, the bills are sent by tube to the departure yard for delivery to the conductor of the outgoing train. Bills for trains departing from the icing tracks are assembled and sent to the ice house for this delivery.

As the lists are prepared on the teletype machine, the bills for the perishable lading are segregated and sent through the tube to the ice house for advance information on icing. They are then returned to the yard office for assembly after the train is made up. The yardmaster of the departure yard is kept informed as to the location of the cars to be iced. This enables the trainmen to reduce the time necessary to spot the cars for icing.

A complete system of floodlighting was installed to illuminate the classification yard and the south end of the forwarding yard, in which an unusually efficient distribution and intensity of lighting is obtained with a relatively few reflectors. By reason of this installation, it has been found possible to maintain the same speed of classification at night as in daylight, the weather being comparable.

Construction of the eastbound yard was started in April, 1930, and this yard was placed in operation on September 4, 1931. Considerable incidental work remained to be done, however, and this was completed in the spring of 1932. In working out the plan, an endeavor was made to utilize all of the existing tracks and other facilities which were adapted for the new layout, and much was accomplished in this direction. To provide the desired length for the receiving and departure yards and space for the car repair yard, as well as the necessary width for the classification yard, however, it was necessary to shift the hump to a new location. This increased the grading quantities considerably, 810,000 cu. yd. of material having been necessary for this half of the project. To obtain this material, a borrow pit was opened near the site of the work and the haul was made in standard-gage cars.

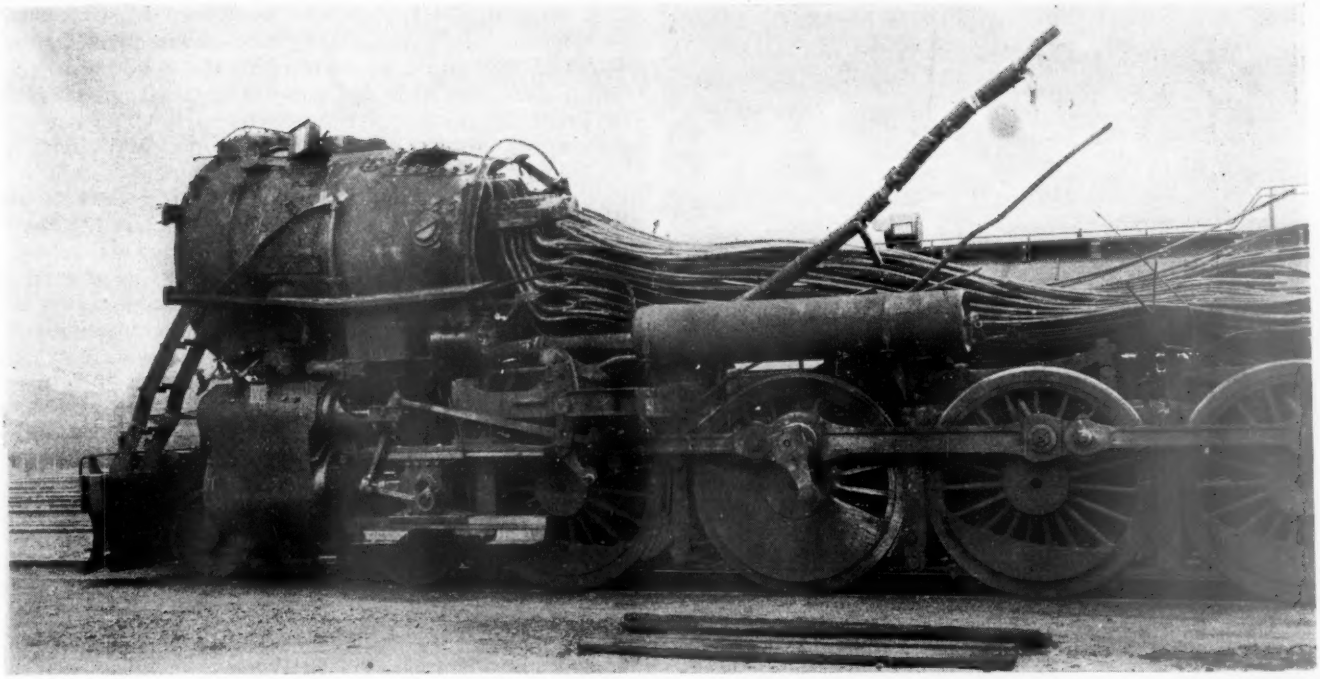
Classify in Both Directions on Eastbound Hump

It had been intended to proceed with the construction of the westbound yard as soon as the eastbound units were completed. The general slump in business, which occurred just prior to this completion, made it desirable, however, to defer the remainder of the project. As this recession became more pronounced, the traffic through the yard ranged from 1,800 to 2,500 cars, with the present average about 2,400 cars. Since this total was much below the capacity of the eastbound yard, it was decided that further economies could be effected by closing down the westbound hump and transferring all classification switching to the eastbound units. Accordingly, this was done on April 4, 1932, and this method of operation is still in effect.

Only minor changes in methods and the elimination of a few classifications were necessary to do this. Westbound trains still proceed to the westbound receiving yard, from which they are handled over the eastbound hump. The assignment of the classification tracks was revised, and special assignments were made in the departure yard for east and westbound trains. Otherwise, the operation is the same as has been described. Outgoing trains to the south use the running track on the east side of the yard, while those going west are routed over the running track between the east and westbound units.

Cameron, Joyce & Co., Keokuk, Iowa, were the contractors on the grading. All track construction and the installation of the car retarders, the signals, the power switches and the floodlighting were handled by company forces. The car retarders, the power switches and the signals were furnished by the Union Switch & Signal Company.

The entire project was developed and carried out under the general direction of A. W. Newton, chief engineer, and C. L. Persons, assistant chief engineer. The plans were prepared by R. W. Willis, district engineer, who also had charge of the construction. The car retarders, signals and power switches were installed under the direction of W. F. Zane, signal engineer. The floodlighting system was designed and erected under the direction of J. E. Gardner, electrical engineer.



Result of a Crown-sheet Failure Caused by Overheating Due to Low Water

Twenty-First Annual Report of the Bureau of Locomotive Inspection

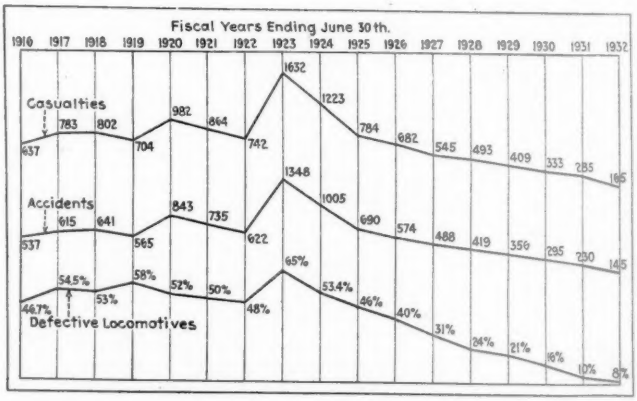
"The drastic economies now being practiced by the carriers will require energetic action on our part if the current conditions are to be maintained"

A. G. PACK, chief inspector, Bureau of Locomotive Inspection, in his twenty-first annual report to the Interstate Commerce Commission, has given a warning that the drastic economies now being practiced by the railroads will require energetic action on the part of the Bureau's inspectors if the current conditions are to be maintained. This report, which is for the fiscal year ending June 30, 1932, shows a further reduction in the number of locomotives found defective to eight per cent, and a reduction in the number of accidents and casualties resulting from such locomotives.

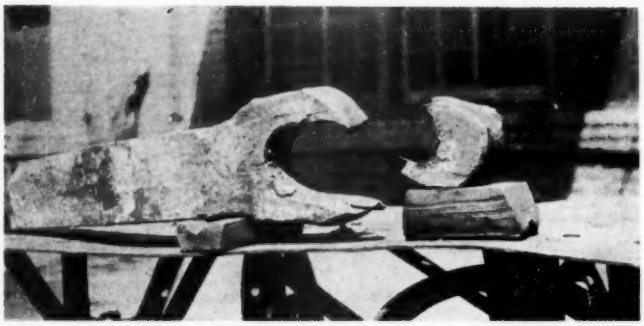
As shown in the chart, the number of locomotives found defective by the Bureau's inspectors have been steadily reduced since 1923. The total number of locomotives inspected in 1932 compares favorably to the number inspected in previous years. In 1927, the Bureau's inspectors inspected 97,227 locomotives, 100,415 in 1928, 96,465 in 1929, 100,794 in 1930, and 101,224 locomotives in 1931. A total of 96,924 locomotives were inspected during the fiscal year ending June 30, 1932. One of the tables included in this abstract of the report shows the accidents and casualties caused by the failure of some part of a steam locomotive during each fiscal year since 1926. Another table shows the number of persons killed and injured for each fiscal year during the same period. Following is an abstract of Mr. Pack's report:

Report of the Bureau of Locomotive Inspection

During the year eight per cent of the steam locomotives inspected by our inspectors were found with defects or errors in inspection that should have been corrected before being put into use. However, the



Relation of Defective Steam Locomotives to Accidents and Casualties Resulting from Locomotive Failures



Drawbar Which Failed Causing the Separation of the Engine and Tender—A Block had been Welded in the End of the Drawbar on Account of Being Badly Worn

drastic economies now being practiced by the carriers, together with increasing traffic, will require energetic action on our part if the current conditions are to be maintained.

The decrease in accidents and casualties brought about by the decrease in defective locomotives, and the converse, are illustrated graphically by the chart.

Accidents and Casualties Caused by Failure of Some Part of the Steam Locomotive, Including Boiler, or Tender

	1932	1931	1930	1929	1928	1927
Number of accidents	145	230	295	356	419	488
Per cent increase or decrease from previous year	36.9	22	17.1	15	14.1	14.9
Number of persons killed	9	16	13	19	30	28
Per cent increase or decrease from previous year	43.7	*23	31.6	36.6	*7.1	*27.3
Number of persons injured	156	269	320	390	463	517
Per cent increase or decrease from previous year	42	15.9	17.9	15.8	10.4	21.6

* Increase.

Detailed reports of our inspections of the steam locomotives of each carrier, and a comparison of the condition of locomotives over a period of years shows that some of the carriers are maintaining their locomotives in such condition as to meet the requirements of the law and the rules, while others were found to be seriously delinquent.

Boiler Explosions or Crown-Sheet Failures

There was a decrease of 46.1 per cent in the number of crown-sheet failures, a decrease of 46.6 per cent in the number of persons killed, and a decrease of 75 per cent in the number of persons injured from boiler explosions as compared with the previous year.

Number of Persons Killed and Injured in Steam-Locomotive Accidents

	1932		1931		1930		1929		1928	
	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
Members of train crews:										
Engineers	3	59	5	73	4	100	7	128	8	151
Firemen	4	49	5	75	4	123	7	128	11	161
Brakemen	2	18	...	39	4	32	1	45	4	54
Conductors	...	7	...	21	...	10	...	24	...	16
Switchmen	...	3	...	8	...	10	1	11	...	15
Enginehouse and shop employees:										
Boilermakers	...	1	...	3	...	1	...	5	3	5
Machinists	...	1	1	4	...	3	...	2	2	4
Foremen	...	...	2	3	...	1	...	1	...	1
Inspectors	...	...	...	...	...	3	...	1	...	1
Watchmen	...	1	...	5	...	2	...	3	1	2
Boiler washers	...	...	...	...	...	2	...	1	...	...
Hostlers	...	5	...	4	...	3	...	5	...	10
Other enginehouse and shop employees	...	4	2	6	1	8	1	3	...	8
Other employees	...	2	...	6	...	6	2	10	...	12
Nonemployees	...	6	1	22	...	16	...	23	1	23
Total	9	156	16	269	13	320	19	390	30	463

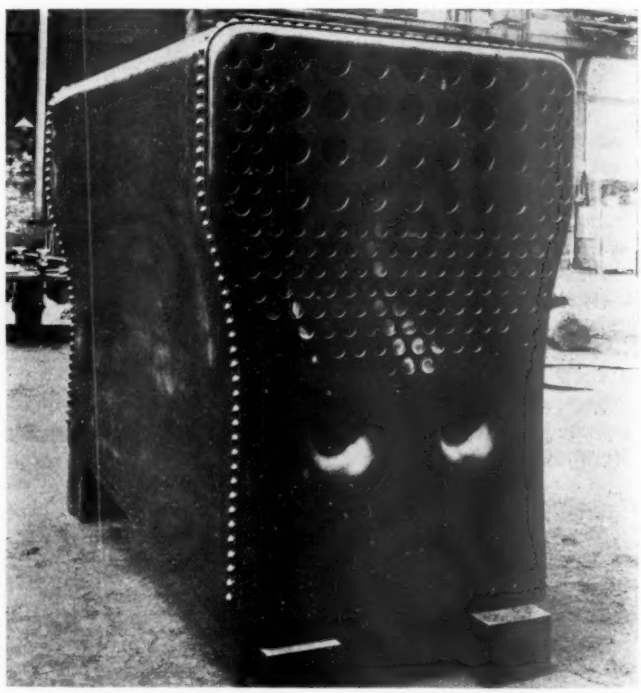
A total of 644 applications were filed for extensions of time for the removal of flues. Our investigations disclosed that in 31 of these cases the condition of the locomotives was such that extensions could not properly be granted. Fifty-seven were in such condition that the full extensions requested could not be authorized, but extensions for shorter periods of time were allowed. Fifty-three extensions were granted after defects disclosed by our investigations had been repaired. Forty-nine applications were canceled for various reasons. Four hundred and fifty-four applications were granted for the full periods requested.

Under Rule 54 of the Rules and Instructions for Inspection and Testing of Steam Locomotives, 343 specification cards and 4,753 alteration reports were filed, checked, and analyzed. These reports are necessary in order to determine whether or not the boilers represented were so constructed or repaired as to render safe and proper service, and whether the stresses were within the allowed limits. Corrective measures were taken with respect to numerous discrepancies found.

Under Rules 328 and 329 of the Rules and Instructions for Inspection and Testing of Locomotives Other Than Steam, 50 specifications and 6 alteration reports were filed for locomotive units and 25 specifications and 13 alteration reports were filed for boilers mounted on locomotives other than steam. These were checked and analyzed and corrective measures taken with respect to discrepancies found.

One suit for penalties, involving 30 counts for placing locomotives in service while defective and in violation of the rules was disposed of during the year. Judgment in favor of the government on six counts for $600 was obtained, while 24 counts were dismissed. No formal appeal by any carrier was taken from the decisions of any inspector during the year.

* * *



Steel Locomotive Firebox Fitted with Nicholson Thermic Syphons for a Number of New Boilers for the Madras & Southern Mahratta Railway, India—Built in England by the Vulcan Foundry Company, Ltd.—The Syphons Were Manufactured by Beyer, Peacock & Company, Ltd.

I. C. C. Annual Report

Receiverships, recapture, holding companies, delegation of authority, accounting, passenger fares and valuation among subjects considered

Part II

WASHINGTON, D. C.

AN ABSTRACT of the opening sections of the Interstate Commerce Commission's annual report, designated as Part I, was published in the *Railway Age* of December 17, beginning on page 917; the commission's remarks concerning the present railway situation, subsidized and unregulated competition, objectionable regulation, railway earnings, the Fifteen Per Cent case, and loans to railroads by the Railroad Credit Corporation and the Reconstruction Finance Corporation were included therein. The remaining portions of the report, giving the commission's views on receiverships and reorganizations, recapture, holding companies, passenger fares, valuation and other important subjects, are abstracted herewith.

Receiverships and Reorganizations

Over 20,000 miles of railroad owned by more than 50 companies are now being operated by receivers. The current depression, as well as changing methods of transportation, threaten materially to increase the mileage operated in this manner. Receiverships under the present laws are not well adapted to public service operations. The process not only makes the continuation of adequate service difficult, but imposes on the public and the security holders losses and expenses which frequently are very burdensome and should be unnecessary. To arrange reorganization, managers, usually banking concerns, are employed at large expense. Committees representing various classes of security holders are created to represent particular interests in the property. Counsel for such committees, counsel for the reorganization managers, counsel for the receivers, counsel for trustees, trustees, the receivers themselves, and other officials, have to be paid out of the property or at the expense of the security holders. In many cases members of the various committees also require payment out of the assets available. Litigation between interests claiming priorities of one sort or another is widespread and expensive. It, too, is usually made a charge on the property.

The result is that security holders are deprived of a return on their investments for varying periods that may, and usually do, extend into years. Much of the delay, expense, and difficulty involved in a receivership and reorganization is due to the opportunity afforded, under our present laws, for a minority, no matter how small, to make trouble without regard to the interests of the property as a whole.

We believe the subject of receiverships and reorganization of carriers by railroad should be considered by the Congress, with a view to legislation intended to reduce the time and expense involved in the process. Such legislation should be directed particularly to facilitating the financial reorganization of a company in difficulties. In other words, voluntary reorganization of a financial structure should be made feasible when necessary and in the best interests of the security holders concerned.

Section 15a of the Act

For the past two years we have recommended repeal, both for the future and retroactively, of the recapture provisions of section 15a and also the substitution of a new rate-making rule for the one which is now contained in that section.

Both the present rate-making rule and the recapture provisions were founded upon the theory that the rates charged by the railroads could be so adjusted—moved up and down from time to time—as to maintain a comparatively stable level of aggregate earnings. These aggregate earnings would provide a fair average return, but the more favorably situated railroads would earn more than a fair return while those not so well situated would earn less.

Accepting the premises on which it was based, this was a logical plan; but in fact the premises were unsound. Perhaps it was assumed, when the present section 15a was devised, that we had reached an era when economic conditions would remain stable; but if so, no such thought is any longer entertained. Another important factor which was then unanticipated or disregarded was the competition of other transportation agencies which has developed so rapidly in recent years, to the detriment of railroad earnings.

The recapture provisions make no allowance for fluctuations in earnings. If a carrier is fortunate enough to have excess income in any year, half of that excess is subject to recapture, regardless of the fact that it may be completely offset by deficiences in succeeding years. This was the most serious defect in the recapture logic, but the plan has been shown to be subject to other objections of a practical nature.

The strongest argument in favor of retaining recapture in some form is the fact that there are a comparatively few railroads which have enjoyed extraordinary prosperity in the past and have even maintained relatively good earnings down to the present time. Aside from the fact that there is no telling how long such carriers will remain exceptions, in view of the continual change in industrial conditions and probable railroad consolidations, we doubt the wisdom of devising a recapture rule to cover such situations. There are other means of dealing with them. Nor is it at all certain that it is a bad thing for the country that some railroads should be able to earn more than ordinarily generous returns, in view of the hazards to railroad earnings which have become so clearly manifest in the light of recent events. The opportunity to earn more than ordinary profits in exceptional cases is an inducement, when such hazards exist, to investment which might not otherwise be made.

It is our view, therefore, that section 15a should be remodeled to fit the conditions which actually beset the railroad industry, instead of the theoretical conditions which were assumed when its present provisions were made law. We renew our recommendation that the recapture provisions be repealed from the beginning. The railroads are facing a difficult future. They have much to contend with and the prospects are not alluring. Repeal of recapture will remove one dark cloud which hangs over their credit, and the removal will benefit rather than harm the country. We also renew our recommendation that for the present rule of rate making in that section a simple rule be substituted which will make it clear that in regulating the general level of rates we shall always keep in mind and be guided by the need for producing, so far as possible, revenues which are sufficient for the maintenance of an adequate national railway transportation system, and also recognize the principle that the railroads may justly earn a surplus in times of prosperity to offset deficiencies in times of depression.

Holding Companies

In each of the past three years we have called attention in our annual report to the operations of so-called holding companies in acquiring control of railroads. When the matter came before the House Committee on Interstate and Foreign Commerce at the last session of the Congress, we favored a bill designed to carry these recommendations into effect, and also to cure certain other defects in section 5. As it now stands, that section does not clearly provide for mergers or purchases of property, as distinguished from consolidations, and its provisions are such that even the latter are in many instances of doubtful practicability. The bill which we submitted undertakes to authorize, under commission supervision, every legitimate and desirable method of combining railway properties, including consolidations, mergers, purchases, leases, operating contracts, and acquisitions of stock control of carriers by other carriers, and also by a single holding company. All combinations under the methods specified must be in harmony with and in furtherance of the plan

of consolidation, and we must find that they will promote the public interest before approving them.

Having authorized every method of combining railway properties that may conceivably be desirable in the public interest, the bill proceeds to prohibit every other means of bringing railroad companies under common control or management in a common interest. The bill, finally, contains a provision authorizing us to investigate holdings of railroad stock, unless acquired prior to the passage of the transportation act, 1920, or thereafter with our approval. If upon such investigation we find that any such stockholding "is or is likely to be a cause in whole or in part of preventing or hindering the carrying out of any such plan or impairing the independence, one of another, of the systems provided for in such plan, by reason of subjecting such carrier to the control, domination, or influence of another carrier," we may require the divestment of such stockholding, or of the voting power of such stock, "to the extent, within the time, and in the manner prescribed by the commission as necessary for the protection and furtherance of such plan."

The time available did not permit of action on this matter at the last session of Congress, and therefore we renew our recommendation. At the time when it was first made, the main purpose which we had in view was to prevent evasion or defeat of the consolidation-plan provisions of the act, which were designed to subject the unification of railroads to the orderly processes of a carefully planned scheme of public regulation. This remains one of the chief purposes of the legislation which we recommend, but recent events have brought sharply into the foreground the need for curbing the operations of holding companies in the interest of the investor.

Delegation of Authority

Beginning in 1928 we have recommended that the commission be given express statutory authority to delegate to individual commissioners and employees the power to perform specified duties, and to consider and determine specified matters and subjects, under the general control and supervision of the commission and the exercise by it of appropriate powers of review.

We again ask that this statutory authority be granted, and earnestly hope that it may receive early consideration by the Congress. Such authority to delegate work would have the following beneficial effects:

(1) Enable the commissioners to devote more time and attention to the matters of major importance, of which there is an abundance.

(2) Expedite the handling of the commission's work generally.

(3) Permit greater opportunity for argument of the cases of lesser importance before the body rendering decision in the first instance.

The recommendation is in accord with the principles of efficient administration and would, we are confident, enable us to function to the greater satisfaction of all concerned.

Deferred Charges to Operating Expenses

In some few cases, upon application, we have during the year authorized carriers to carry in suspense accounts charges to operating expenses arising from the retirement of large items of fixed property; also from the repair and rehabilitation of equipment, both where the cost of the work has been met out of the carriers' funds and where the funds were obtained from Reconstruction Finance Corporation loans. In the case of fixed property retirements, the suspended charges are to be included in operating expenses within a specified period; in the case of repaired or rehabilitated equipment, when it is returned to service. This relieves current income account of an undue burden. It should be borne in mind, however, that when these suspense items are cleared to operating expenses in later periods the showing of income in such periods will be correspondingly reduced. In a much larger number of cases we have authorized carriers to charge to surplus losses on retired property which would otherwise have been chargeable to operating expense, or to augment depreciation reserve by charges to surplus. In 1931 and the first nine months of 1932 these charges so authorized aggregated $85,092,807.33.

Investigation of Passenger Fares

The continued decline in the number of passengers carried by the railways of the United States and in the revenue from passenger business has been the subject of frequent comment. Although considerable effort has been made by the railway executives to adjust the passenger operations to fit the reduced demand therefor, the operating expenses chargeable to this service under our reporting requirements have not fallen as rapidly as the revenues. The expenses so chargeable to the passenger and allied services for the year 1931, before taxes, rentals, and interests, were 110.82 per cent of the revenues from those services. For the freight service the corresponding figure was only 68.62 per cent. No doubt the passenger business still covers the out-of-pocket expenses assignable to it, but it does not contribute to the maintenance of the roadway and buildings and to taxes and interest to the same relative extent as it did formerly, and if a fair return on the entire investment is to be achieved, a heavier burden for overhead falls on the freight traffic.

Early in October of this year we addressed a communication to the presidents of all Class I carriers seeking their views as to (*a*) whether by a general reduction in basic fares a betterment could be brought about in the volume of passenger traffic, and (*b*) what suggestions they might care to offer for relieving the users of freight service from the burden due to unprofitable passenger service. We are now receiving replies to this communication, and we have hopes that our inquiry may culminate in a constructive united effort to find a solution for this difficult problem.

The Hoch-Smith Resolution

The Resolution directed us, among other things, to reconstruct the rate structure of the country and to reapportion the burden under it. In a sense, every rate case is a revision of the existing rate structure, but the Hoch-Smith Resolution was apparently intended to hasten that process. Generally speaking, the Docket 17000 cases have developed into unwieldly proportions. Our experience with them has shown that the country is too big to make it generally practicable to deal with it as a whole or even with the major classification territories, except in proceedings especially adapted to large territorial treatment, such as the classifications themselves. Substantial benefits have resulted from the general surveys which have been made in the Hoch-Smith cases, but these have been offset by the disadvantages connected with unavoidable delay because of the protracted character of the hearings in arriving at specific rate changes in particular territories or to meet particular situations.

Other benefits which its sponsors may have expected from the Resolution were not realized because of the interpretation placed upon it by the Supreme Court of the United States in the so-called Ann Arbor case, summarized at pages 61 to 63 inclusive of our 44th annual report.

Experience indicates that large proceedings like these should be initiated in the future only sparingly and in response to imperative needs which can be met to advantage only in that way.

Bureau of Finance

The following is a statement of applications filed during the year for certificates of public convenience and necessity under the provisions of section 1 (18) to (22) of the act, and of the disposition made of applications:

Item	Number	Mileage
Applications filed:		
For authority to construct new lines or extend lines	9	850.861
For permission to abandon mileage	114	2,281.426
For authority to operate or to acquire and operate	34	2,019.832
Total	157	5,152.119
Certificates issued:		
Authorizing new construction	11	38.030
Permitting abandonment	90	1,418.270
Authorizing operation or acquisition	30	945.482
Total	131	2,401.782
Applications denied:		
For authority for new construction	10	952.87
For authority to operate or to acquire and operate	1	40.60
Total	11	993.47
Applications dismissed:		
For authority for new construction	3	336.70
For permission to abandon	5	74.45
For authority to operate or to acquire and operate	5	93.17
Total	13	504.32

Since the effective date of the act we have authorized the construction of approximately 9,659 miles of new railroad. Based on reports by carriers and on other available information it appears that of the construction authorized, approximately 6,495 miles of road have been completed, and that projects aggregating 1,400 miles have been abandoned or deferred. The balance, about 1,764 miles, represents cases in which the specified completion periods have not expired.

Under section 20a (9) certificates of notification of the issue of notes maturing within two years in the aggregate sum of $248,548,945.08 were filed.

The following tabulation shows by classes the respective amounts of securities authorized:

Class of security	Nominal issue	Conditional issue	Actual issue
Preferred stock			$8,500,000.00
Common stock	[1] $43,101,901.05		26,503,500.00
Mortgage bonds	142,283,750.00	$829,430,106.93	111,682,000.00
Secured notes	60,000.00		138,628,984.00
Unsecured notes	24,743,306.88		41,169,771.25
Equipment-trust obligations	2,040,000.00	195,000.00	5,803,000.00
Receivers' certificates			24,729,469.71
Total	212,228,957.93	829,625,106.93	357,016,724.96

[1] Also 27,954 shares without par value.

The amounts shown as authorized for actual issue do not include securities delivered by a subsidiary to a controlling company subject to our jurisdiction, unless the controlling company has been authorized to dispose of the securities. Such securities are included under "Nominal issue."

Additional capitalization to result from the various authorizations is as follows: Nominal issue $128,283,807.93, conditional issue $396,752,606.93, and actual issue $81,936,888.25.

Several pages of the report are devoted to an explanation of the importance of the work of the Bureau of Accounts, whose appropriation was cut in two by Congress at the last session. Even if recapture should be repealed, the commission challenges the assumption that its force of accountants ought for that reason to be cut to small proportions, stating that its regular work has been interfered with by the special examinations made for recapture and other purposes. "At a time when intense competition among themselves for traffic," the report says, "was inducing the carriers to extend various concessions, direct and indirect and in the nature of rebates, to large shippers in bidding for traffic—concessions which were wasteful and harmful in the long run to the railroad industry as well as to the general public—we were unable to give this matter the degree of attention which it would have had if the accountants had not been otherwise engaged. At a time, also, when many of the carriers were enjoying a prosperity which tempted them to unnecessary and wasteful expenditures of capital for various purposes, we were for the same reason unable to keep ourselves adequately informed in regard to these activities."

Bureau of Valuation

The Bureau of Valuation reported that during the year it has completed the last of the primary valuations of the 1,685 steam railroads listed for valuation as existing on March 1, 1913. These valuations are included in 1,035 final valuation reports, although a few have not yet been published. The work of bringing the valuations down to date is said to be well under way and should be brought to a state of currency by June 30, 1934, if appropriations for the work are afforded. The commission is moving to simplify and reduce the requirements on the carriers and will at the same time urge the elimination of surplus reports and detail on the part of the carriers. The report repeats the recommendation heretofore made that the valuation act be amended to simplify the work of keeping valuation records up to date and authorize the commission to issue new valuations when and as need or desirability may dictate.

As indicating the progress made in bringing valuation records down to date the report says that a convenient yardstick is mile-years, the products of the 250,000 miles of road by the number of years intervening between the primary valuation and the date to which the valuation is to be brought, an accumulation of 4,000,000 mile-years to January 1, 1933. Examinations have been completed on 2,500,000 mile-years.

The commission during the year has reduced the number of formal cases pending before it to 1,783, as compared with 1,904 the year before and 2,477 in 1929. The number of formal complaints filed during the year was only 971, including 146 subnumbers, a decrease of 50 as compared with the previous year.

Rate adjustments were protested and suspension asked in 626 instances, an increase of 187 over last year. Of these protested adjustments, 253 represented reductions, 278 represented increases, 73 represented both and 22 neither. Of these 198 were suspended.

Applications received during the year for special permission to establish rates on less than statutory notice or waiver of tariff-publishing rules numbered 11,829 and specific orders were issued granting 10,209 and denying 1,248 of these applications.

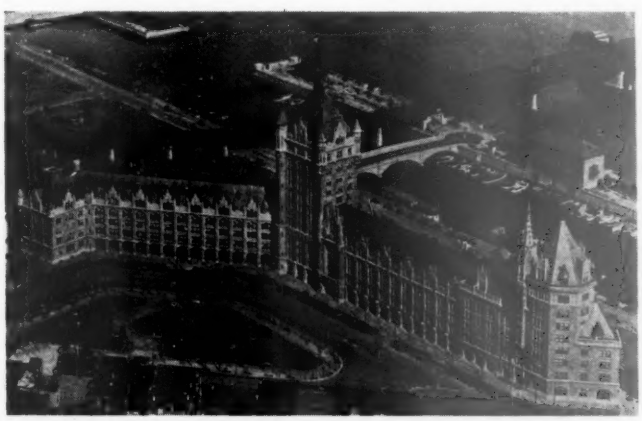
The Bureau of Locomotive Inspection reports that during the year ended June 30 only 8 per cent of the locomotives inspected by its inspectors were found with defects or errors in inspection that should have been corrected before being put into use. This compares with 10 per cent the year before and 21 per cent in 1929. Due to drastic economies now being practiced by the carriers, the report says that with increased traffic it will be difficult to prevent an increase in this percentage. The Bureau of Safety says that the number of safety-appliance defects per 1000 cars and locomotives inspected was 20.93 and that "the condition of safety-appliance equipment has been improving for several years, and the records of inspection for the past year reflects the best conditions that have been found since this inspection work began." (See also page 943.)

The "general railroad contingent fund," made up of collections under the recapture clause and interest, amounted to $12,882,403. Ten final recapture orders have been made and the combined proposed and tentative recapture report cases upon which action has been and is being taken now number 245, with estimated recapturable excess approximating $100,650,197. The work has progressed to the point where reports are being served upon Class I carriers in an increasing number.

The report includes nine recommendations which are described as of major and pressing importance and which have a direct bearing on the general railroad situation, six others which relate to matters of lesser magnitude, and reference is made to six others in last year's report of less importance.

AMALGAMATION OF ALL FRENCH RAILWAY SYSTEMS has been proposed by the Minister of Public Works to the Commission of Public Works of the Chamber of Deputies, as a possible remedy for the heavy financial losses being experienced by the various companies.

* * *



The Delaware & Hudson General Offices at Albany, N. Y.—New York Central Tracks in the Background

Wage Negotiations Concluded

Labor representatives' authority to negotiate questioned — Object of conference obscured by proposals of wider scope

WAGE negotiations which began at Chicago on December 12 were concluded shortly after midnight on December 22, when, after failure to agree seemed certain, the conference committee of managers and the 21 labor executives signed an agreement extending the present deduction of 10 per cent in basic rates of pay until October 31, 1933. The agreement also provides that if either side wishes to change the basic rates, action toward that end may not be initiated prior to June 15, 1933. Prior to the agreement the union executives had contended for an extension of the deduction for a period of a year, and the managements wished to terminate it in six months.

The agreement, verbatim, is as follows:

"It is agreed between the parties hereto that the original agreement is hereby extended so that up to and including October 31, 1933, ten per cent shall be deducted from each pay check of each of the employees covered by this agreement; that basic rates of pay shall remain as under the original agreement; that this agreement shall terminate automatically October 31, 1933, and that neither party prior to June 15, 1933, will serve notice of a desire to change or extend this agreement, or of an intended change in basic rates of pay, such change or extension to become effective on or after November 1, 1933; it being further agreed that in the event that such a notice should be served by any party hereto between June 15, 1933, and November 1, 1933, the proceedings thereunder shall be conducted pursuant to the provisions of the Railway Labor Act and such proceedings shall be conducted nationally in order that the matter may be handled to a conclusion as expeditiously as reasonably possible."

On December 12 the railroads submitted a proposal seeking an extension of the existing agreement and providing that any further changes in wages as necessity may require be made through the orderly process of law. This proposal was rejected by the employees who contended that it was intended to wipe out the existing agreement and was not a proposal to extend the agreement for any period. In reply, the railroads submitted a counter proposal providing for an extension of six months, that a proposed change or termination of the deduction agreement be deemed an intended change affecting rates of pay and that no notice of a change in basic rates of pay and no notice of a change or termination of this deduction agreement be given by either party prior to July 1, 1933.

In answer to this proposition the labor representatives, on December 15, submitted a counter proposal to the effect:

That the present agreement be extended for a period of one year from its present expiration date, thereby providing that 10 per cent shall be deducted from each pay check of each of the employees covered by said agreement and by this agreement for a period of one year, beginning February 1, 1933;

That basic rates shall remain as on January 31, 1932;

That this arrangement shall terminate automatically January 31, 1934;

That no change shall be made and no notice of any change shall be given by the participating railroads or the participating organizations (individually or jointly) affecting basic rates of pay or rules determining compensation during the life of this agreement as extended (except so far as changes are brought about or made necessary by federal legislation), with the following exception:

That a notice may be served by and in behalf of all the participating railroads or all the participating organizations of employees on or after January 1, 1934, proposing a further extension of this agreement, and in the event that such a notice shall be served by either party prior to February 1, 1934, it is hereby further agreed that this agreement and all the terms thereof shall be extended so that it shall remain in effect until and including March 31, 1934, with the same effect as though it had been now extended to that date.

In commenting upon this proposal and that of the railroads, A. F. Whitney, chairman of the Railway Labor Executives' Association, said, in part:

The railway employees are aware of the pressure which is being exerted upon railway managements to sacrifice every other interest to continuing without reduction the payment of what are called the "fixed charges of the railroads." The wage earners now employed by the railroads are rendering services more profitable to the owners for less compensation than in previous years. For example, your payroll charge to operating expense per service unit was 14.5 per cent less in 1930 than in 1923. Furthermore, the service rendered to the public for each hour worked by an employee averaged 31 per cent more in 1930 than in 1923. These figures clearly demonstrate that reductions of railway wages would mean simply to take from the employees part of the money which they are earning in order to pay this money to other persons who are not earning it.

Today only railway workers who are earning money for the roads, and producing revenue, are being paid; and you are collecting in transportation rates substantially as much money as heretofore for the services they perform. As traffic has declined, the number of employees has been reduced. The railway workers today are only about 50 per cent employed, and receiving only 50 per cent of the normal payroll. In other words, the 10 per cent deduction has absorbed any additional cost of labor because of declining traffic. The investment in the railroads is not more than 55 per cent employed. But your "fixed charges" equal a fair return on about 80 per cent of that investment, so that when you seek to meet those fixed charges without reduction, you are seeking to pay full wages to 80 per cent of the money investment, although only employing 55 per cent. It would be necessary to pay full wages to 75 per cent of your employees to give the labor investment in the railroads an equality of treatment.

Why should this property owner be paid full wages when half of his property is unemployed? Why should the railway worker be paid nothing when he is unemployed and then be paid less than the wages which he has fully earned when his services are employed? You talk about the financial integrity of the railroads, and we agree that the financial integrity of the railroads should be protected, but our primary responsibility, and we believe it is the primary responsibility of the nation, is to protect the integrity of human lives.

Labor's Position

We have expressed ourselves somewhat at length and perhaps forcibly on this subject because we think it is about time in conferences of this character to stop talking nonsense about relieving the so-called dire distress of an industry by increasing the dire distress of human beings. We are convinced that a restoration of basic rates of pay on February 1, 1933, would be beneficial not only to the railroad workers but to the entire nation. We are convinced that if our national credit were wisely used, a great increase of purchasing power, a great increase of employment, could be quickly stimulated, and that such a program, combined with a policy of wage increases, would put us back on the road to prosperity. But we recognize that the financial leadership of the nation has not yet learned the lesson of the depression, that it is perhaps incapable of learning it, and that probably only a new generation can bring back economic health. We recognize that your committee are merely the representatives of that industrial and financial leadership which has guided us into the depression and has been unable to guide us out. We are not willing to join you in any program which will make matters worse; but we think that it is perhaps necessary to join you in

a program to keep things from getting worse; it being hopeless to expect that you will be permitted to join us in a program to make things better.

In the counter proposal which we present, we have sought to meet the thought embodied in your proposal to avoid further controversies by eliminating efforts to change basic rates of pay or those rules which determine compensation during the life of the agreement. We cannot go along with your suggestion of an indeterminate period for the agreement, because in practical effect that would transform a deduction from pay checks into a reduction of wages and make it necessary for the organizations to go through the wearisome process of years of negotiations and arbitrations to restore their former wage rates.

We regard the automatic restoration of basic rates of pay as the very essence of the agreement of January 31, 1932, and we would regard the elimination of that provision as amounting in practical effect to a cancellation of the agreement. As we have explained heretofore, we are here to negotiate an extension and not a cancellation of that agreement.

Railroads Hold Fast

At this point, negotiations seemed at a standstill, each side holding fast to its original proposal. In reply to Mr. Whitney, the railroads on the same day sought an arrangement incorporating: (1) An extension of the present deduction arrangement for six months and (2) a provision that the deduction shall continue thereafter, if either party should so desire, during such period that appropriate proceedings may be had under the Railway Labor Act to determine the wage rates to be paid in the future. Under such an arrangement, it was felt, both parties could agree to co-operate to expedite any such proceedings as might become necessary under the Railway Labor Act, so that the period of such extension could be a minimum.

W. F. Thiehoff, general manager of the Chicago, Burlington & Quincy, and spokesman for the railroads, in presenting this proposal, said:

As we see it, your position is that in order to maintain the wage rates on the railroads which were paid at the peak of our prosperity, not only must the stockholders forgo dividends (which they have now almost universally done), but also that before wage rates can be reduced those who have loaned money to the railroads on their bonds and notes and have thereby made it possible for the railroads to exist, must relinquish portions of their interest or forgive a part of the debt. Under our laws, such a course would mean railroad receiverships and bankruptcies, with consequent disaster to the millions of our citizens who are depositors in our banks or hold policies in our insurance companies. Neither wage earners on the railroads nor wage earners in other industry could escape the tragic results of such a course. To that sort of doctrine we cannot agree.

So far as the counter proposal which you have submitted to us is concerned, we cannot accept it as it would completely tie our hands to meet such situations as may develop during the coming 12 to 15 months, regardless of how necessary it may be in that interval to further reduce the costs of railroad operation. As we view the present situation, a 10 per cent reduction in wages is wholly inadequate, but we are willing to agree to a continuance of that measure of reduction for a limited period of time at the end of which the decision may be made in the light of the situation as it then exists as to what wages shall be paid thereafter. That period we are willing to make six months, provided you will agree with us that at the end of that time, if either party should so desire, the wage deduction shall continue in effect for such additional period of time as may be necessary to accomplish a determination of future wage rates pursuant to the provisions of the Railway Labor Act.

Labor Seeks Extension of Agreement

Mr. Theihoff's report resulted in a strong statement by labor on December 16, setting forth the attitude of employees. Mr. Whitney said:

Your attitude in declining our counter proposal is frankly surprising and discouraging. A year ago the railroads of the nation, speaking through the committee of nine railroad presidents, made this proposition to us. We did not make the proposal to the railroads, nor did they make it as a compromise suggestion. This was their original proposal, and subsequently they insisted that it be accepted as written.

It was the plain, well understood and the only honest construction of this agreement that the employees were voluntarily agreeing to a 10 per cent deduction for one year (thus avoiding all delays and uncertainties in an immediate donation of the full amount asked by the railroads) and that in exchange, the employees were being guaranteed that no changes would be made in the basic rates of pay for one year, and at the end of that year, without effort on their part, or resistance on their part to any opposing effort, they would have their basic rates automatically restored.

Certainly no one would claim that after agreeing that notices for a 15 per cent reduction in rates of pay would be withdrawn and that further proceedings thereunder would be discontinued, the participating railroads could proceed to file another notice for a 15 per cent reduction and start new proceedings, and yet comply in good faith with their agreement. Could it even be argued in a most technical and judicial proceeding that after agreeing that you would not prosecute a claim for 15 per cent for one year, you would be free to prosecute a claim for 20 per cent?

We meet your proposal with a proposal to duplicate the action taken a year ago, a proposal to extend the deduction agreement for another year upon the same terms, except that we provide definitely for your benefit a more liberal period of possible future negotiation concerning any further extension. You drop this proposal as unworthy of consideration, although it is precisely the proposal of the railway presidents' committee of a year ago. Your rejection is based not on the amount of the deduction, but on the manner of terminating the deduction, and that is precisely the proposition presented by the presidents' committee a year ago.

We desire to have the issue which you seem bent upon making, made very clear, not only between us, but made very clear to the public. We would like to have it very clear that we stand ready to extend the agreement made a year ago for another year on precisely the same terms, and, in addition, we will propose to allow a specific and adequate time for a negotiation, if necessary, for the further extension of the agreement as extended. For these reasons, we have redrafted our proposal and present it now in the form of a simple extension for one year. This requires merely a rewriting of the last paragraph to read as follows: "That a notice may be served by and in behalf of all the participating railroads or all the participating organizations of employees on or after December 1, 1933, proposing a further extension of this agreement."

Question Authority of Labor Representatives

In reply to the employees' statement, the Conference Committee of Managers on December 16 questioned the authority of the employees' representatives to negotiate all angles of the controversy. The statement of the committee follows:

We are either right or wrong in the proposition that the railroad industry requires a reduction in costs of operation, and that as a part of such reduction in costs of operation there must, unless conditions change, be a reduction in railroad wage rates. If we cannot reach an agreement with you concerning a continuance of the present deduction agreement upon terms which we think will reasonably protect our companies, our present negotiation will obviously fail.

We have submitted to you a proposal which incorporates these essential elements: 1. An extension of the present deduction arrangement for six months. 2. A provision that the deduction shall continue thereafter, if either party should so desire, during such period that appropriate proceedings may be had under the Railway Labor Act, to determine the wage rates to be paid in the future.

We have considered that both of these elements were necessary to a solution because as conditions are now, we do not consider that a 10 per cent deduction in wages is sufficient. We realized, however, in the light of your communication of December 13 that you would desire some definite advantage from these negotiations before you would agree to an extension of the deduction arrangement, and the placing of it under the Railway Labor Act. We, therefore, have told you that we would be willing, as a maximum proposition, to agree to an extension of six months, and thereafter subject to the Railway Labor Act, withholding any notices of further changes in wage rates until 30 days prior to the expiration of that term. Whether or not such notices would be served then, would, of course, depend wholly upon the conditions within the industry and throughout the country at that time.

Your proposal is much less favorable to the railroads than the present arrangement which you have designated as the Willard Agreement, and which you have asserted must not be changed. Under the present arrangement, we could have served notice, at any time, of a change to take effect at the end of the agreement; in fact, in September we contemplated doing so, and

suspended our effort, not because there was any doubt as to our right to do so, but because we were prevailed upon by high public authority.

In the second place, the proposal which you have made would bind the hands of the railroads as to changes, not only in rates of pay, but also as to rules governing working conditions, a matter wholly outside the scope of the so-called Willard Agreement.

In the third place, it asks the managers of the railroads, with their full knowledge of the present desperate plight of their companies, to agree that regardless of how much worse the situation may become during the coming months, that they will be absolutely bound to make no further effort for at least a year, and that if at the end of that time they should do so they would again be confronted with an automatic cutoff, or deadline date, and an 11 per cent increase in wages at that time.

In addition to all these things, your proposal goes far beyond anything yet discussed, in that it provides that if a notice should be given asking you for a further extension of the agreement, it would have to be served "by and in behalf of all of the participating railroads." In other words, it conditions a request for any such extension of the agreement upon the unanimous decision of all, depriving the carriers, which after all are separate corporations, of individual action.

In the light of the statements which you have made in your communications to us, and in the oral discussions of them, which have not been reduced to writing, we should like to know, as a basis for further possible negotiations here, the answers to certain questions which have very naturally arisen in our minds. These questions are:

1. Is your authority in negotiating an extension of the deduction arrangement limited to the extent that you can only agree in the event that there is an automatic restoration of the basic wage rates at the end of some fixed period?

2. Have you authority, either on the part of your committee of 21, or your general chairmen, to agree to an extension of the deduction arrangement, which will make its termination subject to the provisions of the Railway Labor Act?

3. Have you, including both your committee of 21 and the general chairmen, authority to negotiate any change in the basic wage rates?

4. Have you, including both your committee of 21 and the general chairmen, authority to negotiate any greater deduction from pay checks than 10 per cent?

5. Have you authority to agree to co-operate in expediting any proceedings which may become necessary under the Railway Labor Act, either in connection with an extension of the deduction agreement, or otherwise?

You must realize that it is impossible for us to negotiate further with you at this time, unless we are definitely acquainted with the extent and nature of your authority. We cannot afford longer to be met with the statement on your part, whenever proposals are suggested by us, that you are without authority to deal with this, that or the other thing.

Railroads Asked to Answers Questions

The representatives of the railway labor organizations replied on December 17 by outlining their authority and asking several questions of the railway representatives as follows:

We have full and complete authority to negotiate to a conclusion the proposal which you submitted to us on October 14 as the subject matter of this conference. There is not the slightest suggestion in our exchange of correspondence that you would propose to change the agreement expiring January 31, 1933, or that you would seek to cancel it, either directly or indirectly. You did not ask that we obtain authority to negotiate any such proposal, and we did not seek to obtain such authority.

1. Having agreed, on January 31, 1932, to withdraw notices for a 15 per cent reduction in rates of pay and to discontinue further proceedings thereunder, do you claim that you could have filed another notice for 15 per cent, or 14 per cent, or 16 per cent, on February 1, 1932, without violating the agreement?

2. If you could have filed a new notice the next day, where do you find any justification in the agreement for filing such a notice at any time during the life of the agreement?

3. Do you claim that on February 1, 1932, you could have filed a notice for a change in basic rates effective on March 1, or July 1, or December 1, 1932, without violating the agreement?

4. Do you claim that on February 1, 1932, you could have filed notice of a 15 per cent reduction to be effective February 1, 1933, without violating the agreement which provided for the automatic restoration of basic rates of pay on February 1, 1933

5. Do you claim that you could have filed, on February 1, 1932, a notice seeking to compel by superior force the cancellation of that part of the agreement most beneficial to the other party which you had made the previous day, without violating the agreement?"

The reply made by the railroads on December 17 upheld the proposal which they had made on December 14, as follows:

We hold that we have the undoubted right now, and have had it heretofore, to serve notice of any change in basic rates which we think should justifiably take effect at the end of the present agreement. In our letter of October 14 our proposal was only to withhold the service of notices of a change in basic rates pending this negotiation, and not until the expiration of the agreement. In your letter of October 15 you agree to meet us here, as you therein stated: "In view of your agreement to withhold the service of notice of any reduction in present basic rates pending the negotiation."

On December 17 the Railway Labor Executives' Association revised its proposal, as follows:

You have offered in your proposal of December 14 to postpone raising any controversy over your right to serve notices of a change in basic rates of pay until July 1, 1933. A controversy postponed may never arise, or its adjustment may be easier at a future date. Therefore, we have decided to eliminate from our counter proposals of December 15 and 16 any issue except that of the length of the period of the extension of the Willard Agreement, with the express understanding that the parties to the extension reserve each and every right and accept each and every obligation under the agreement during the period of extension which they had under and during the period of the original agreement. We, therefore, propose to extend the Willard Agreement and all its terms for the period of one year.

This proposal was turned down by the Conference Committee of Managers, on the ground that it would tie the hands of the railroads for one year, regardless of conditions that may develop during that year and it holds over them a threat of litigation in the event the railroads exercise a right they already have under the existing agreement.

Mr. Thiehoff in a letter to Mr. Whitney, said:

"Our position is: (1) That we will not agree to extend the present arrangement for one year; (2) that we are unwilling to extend the present deduction arrangement for any period, or in any manner which leaves open or in disagreement a controversial question which may invite a further controversy or litigation; (3) that we will not relinquish our right to serve notices in respect to the rates of pay to be applicable at the end of that agreement unless we specifically agree to withhold the service of such notice for a definite period as in our proposal of December 14; (4) that our proposal of December 14, which we made in a sincere effort to find a basis for settlement of our present negotiation, is as far as business conditions warrant or justify us in going."

Receiver Appointed for Central of Georgia

THE Central of Georgia was placed in receivership on December 19 under an order of the federal court in Augusta, Ga., following the filing of a bill in equity by the Alabama Fuel & Iron Co., alleging insolvency, which the railway admitted. Henry D. Pollard, president of the line, was named receiver. With the exception of directors' qualifying shares, all the $20,000,000, par, of the company's stock, all common, is owned by the Illinois Central.

The company operates 1,944 miles of line, serving that part of Georgia indicated by its name, from tidewater at Savannah, westward to Montgomery, Ala., and Birmingham, at which latter point it connects with the parent company.

Under normal conditions the road was a relatively prosperous property. In 1926 it earned $18.38 per share on its common stock and $8.79 in 1929. In 1930 $7.04 was earned, but in 1931 this had fallen to a deficit of $2.96 per share. Dividends were maintained at con-

servative levels in the period of good business, the rate of $7 being maintained in 1928, 1929 and 1930. The last payment was $3.50 for the first half of 1931. For the first ten months of the current year a deficit of $195,249 after taxes but before fixed charges was incurred, as compared with a net of $1,659,463 before charges in the same period last year.

The company has been borrowing money from the Reconstruction Finance Corporation to pay interest, taxes, rent and overdue vouchers—a total of $6,474,000 having been received from this source for the purpose. The receivership, so an officer of the company stated, resulted because the road "ran out of collateral with which to secure further loans from the R. F. C." Railroad leaders have recently protested the exacting collateral requirements for loans from that body.

The railroad at the end of 1931 had $59,931,000 of funded debt outstanding, but none of its long term obligations mature in the next decade.

Track-Circuit Shunting With Light-Weight Cars

THE use of light-weight rail motor cars has introduced a serious problem on lines where track circuits are used for the control of automatic signals, interlocking or highway-crossing signals since, because of their light weight, these cars fail to afford an adequate shunt for the track circuits under certain rail conditions. This problem has become even more serious with the innovation of the rubber-tired rail car, since this car involves complete insulation between the wheels and the rails. This has made it imperative to develop a new method of shunting track circuits and such a system has been developed and installed by the Union Switch & Signal Company.

In the new shunting system no auxiliary apparatus is required upon or along the wayside, the shunting equipment being confined entirely to the car itself. The principle consists of providing a source of electrical power on the car. A circuit for this source of energy is provided through brushes to the rails, so that a comparatively high potential is available to break through the resistance of any film which may exist on the rail, after which this auxiliary source of energy causes a comparatively heavy current to flow continuously from the brushes to the rail, keeping the resistance of the rail film down to a value sufficiently low to shunt the track relay.

The source of power on the car is an a-c. generator driven by a motor which receives its power from the car battery. The generator supplies power to two transformers which have their secondary windings connected to pairs of brushes in contact with the rails at the front and rear of the car. The voltage on the secondary windings breaks down the high-resistance film between the brushes and the rails, and causes a current to flow from each secondary through the brushes, rails and the other pair of brushes and secondary windings.

In order to indicate that the shunting apparatus is functioning properly, two small indicating lamps are provided, one or both of which is extinguished when the current drops below a predetermined value, thus calling the attention of the engineman to the fact that something is wrong. If desired, a single-stroke bell or a whistle may be operated to give audible warning also. While the description refers to shunting in conjunction with rubber-tired cars, it is evident that a similar application will materially improve the shunting of the light-weight steel-wheeled cars.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended December 10 amounted to 521,216 cars, a decrease of 26,245 cars as compared with the week before and a reduction of 92,405 cars as compared with the corresponding week of last year. The loading was 223,137 cars less than that in the corresponding week of 1930. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Week Ended Saturday, December 10, 1932			
Districts	1932	1931	1930
Eastern	117,259	137,888	162,961
Allegheny	96,068	120,390	114,660
Pocahontas	36,586	37,619	44,089
Southern	83,046	91,908	117,641
Northwestern	58,695	71,674	88,824
Central Western	80,110	99,312	121,079
Southwestern	49,452	54,830	65,099
Total Western Districts	188,257	225,816	275,002
Total All Roads	521,216	613,621	744,353
Commodities			
Grain and Grain Products	27,752	30,181	39,532
Live Stock	18,101	24,651	25,573
Coal	119,415	131,068	149,073
Coke	5,064	6,657	8,541
Forest Products	15,386	19,065	34,062
Ore	1,833	4,004	6,393
Mdse. L. C. L.	166,067	197,554	219,005
Miscellaneous	167,598	200,441	262,174
December 10	521,216	613,621	744,353
December 3	547,461	636,366	787,072
November 26	493,882	558,798	701,050
November 19	575,851	653,503	779,752
November 12	537,093	689,960	829,023
Cumulative total, 49 weeks	26,776,673	35,626,453	43,852,062

The freight car surplus on November 30 was 621,631 cars, an increase of 32,581 cars as compared with the number on November 14. The total included 353,354 box cars, 197,724 coal cars, 30,153 stock cars, and 13,210 refrigerator cars.

Car Loading in Canada

Car loadings in Canada for the week ended December 10 were light and the total loadings decreased from 42,267 for the previous week to 38,004 cars. This depressed the index number to 56.86, a drop of 2.78 points from the previous week's, and created a new low record for the year.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
December 10, 1932	38,004	17,547
December 3, 1932	42,267	17,984
November 26, 1932	43,274	17,250
December 5, 1931	49,586	21,355
Cumulative Totals for Canada:		
December 10, 1932	2,079,759	923,928
December 5, 1931	2,455,775	1,220,990
December 6, 1930	3,014,134	1,618,760

THE NEW URAL-KUZNETZ RAILWAY, connecting Novo-Sibirsk and Leninsk in the Union of Socialist Soviet Republics, was opened for operation on November 7. The 187-mile line, begun in 1930, was completed at a cost of $31,000,000, to facilitate the movement of coal from the Donetz Basin to steel plants at Magnitogorsk, according to the Amtorg Trading Corporation's Economic Review of the Soviet Union. The same publication also reports progress on construction of another new line, 790 miles in length, connecting Moscow with the Donetz Basin.

Motor Transport Section

Cutting the Cost of Storedoor Delivery

Pacific Motor Transport saving 20 per cent by operating own motor equipment instead of contracting for trucks— Service also improved

By L. B. Young

Vice-President and General Manager, Pacific Motor Transport Company

AFTER three years' experience with the operation of pick-up and delivery service on the Southern Pacific Lines, the Pacific Motor Transport Company is convinced that, with some exceptions, it can provide better service, and at less cost, by operating its own trucks than it can by contracting for the work with local draymen.

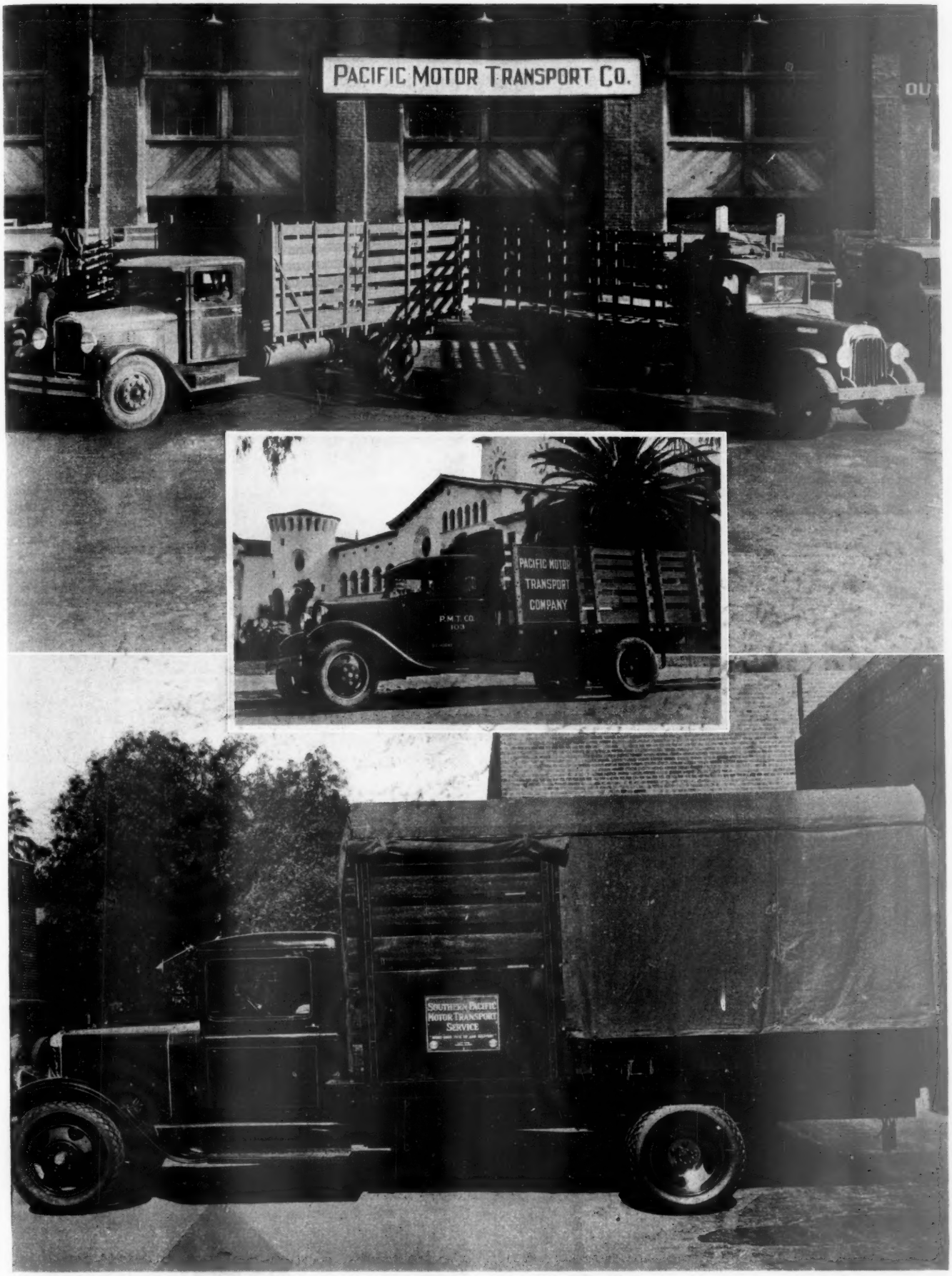
The Pacific Motor Transport Company, a subsidiary of the Southern Pacific, is the organization through which storedoor pick-up and delivery service is provided on the lines of the Southern Pacific and the Pacific Electric, and on various short-line railroads throughout the states of California, Oregon, Nevada and Arizona. Its method of physical operation is identical with that of the Railway Express Agency, Inc.; that is, the haul between towns is performed by the railroad in railroad cars, and the pick-up and delivery service at origin and destination is performed by motor trucks.

There are two methods by which this pick-up and delivery service can be provided: One is to contract for the work with a local drayman in each town served; the other is for the carrier to purchase trucks and itself perform the service. At the beginning of its operation, Pacific Motor Transport in every instance contracted for the work with the local draymen. This method was favored because it was expected that each local drayman, having already an established drayage business that was earning all fixed charges, could absorb this added work at a rate that would be lower than the cost to the transport company of performing the service itself. More recently, however, the transport company has begun to change over to the other plan, and now is doing its own pick-up and delivery work on about 25 per cent of its traffic. At every point where the change has been made the service is better and the cost is lower than when the work was done by contract, and further installations of its own trucks at additional points are being considered by Pacific Motor Transport.

It is not intended to imply that the carrier, in all instances, can do the work more cheaply than the public drayman. At the very small towns, there is no doubt that the drayman can do the work at a lower cost. Except at large terminals, where it is somewhat higher, a drayman's charge, considering the large proportion of minimum weight shipments to be handled, will average about eight cents per 100 lb. Thus, at a small town receiving, say, 4,000 lb. of merchandise a day, the drayman's total charge, at the rate of eight cents a hundred, would be only $3.20. Obviously, a carrier could not afford to maintain a truck for the sole purpose of delivering such a small volume of freight, so that at a town of this size a contract with the local drayman seems to be the best arrangement. But at the larger points, the transport company's experience seems to have demonstrated rather conclusively that operation of its own trucks is the economical and the practical thing to do. In the first place, the cost of operating motor trucks in this sort of service is quite low—substantially less perhaps than is generally believed, in the absence of experience or analysis, to be the case. Pick-up and delivery trucks will make about 40 miles a day, and at this rate will last for years. Since they operate almost entirely at slow speed, and for short distances, maintenance and operating costs are correspondingly low. Their operation, being along with other station activities

Contract Truck Service More Expensive

When the Pacific Motor Transport Company, pioneer in the development of railway storedoor delivery service, began its operations, it invariably contracted with local draymen for motor truck pick-up and delivery service. The same procedure has been followed by most other roads which have extended their freight operations to include the pick-up and delivery of freight, and this is the reason why the railroads, while making daily use of thousands of motor trucks, have only a relatively small number of their own. Experience has demonstrated to Pacific Motor Transport, however, that in all except the smallest towns where it solicits freight traffic, it can reduce the expense and improve the quality of its pick-up and delivery work by owning and operating the truck equipment, instead of contracting for the use of draymen's trucks. In this article, L. B. Young, vice-president and general manager of Pacific Motor Transport, tells how his company, by this change in operating method, has reduced the cost of truck service at a number of points by as much as 20 per cent.



(Top) Truck Bodies of This Type Have Been Found Most Satisfactory for Handling Large, Bulky Loads—(Center) Light Trucks Are Used for Pick-Up and Delivery Work in Small Towns—(Bottom) A Stockton Truck Fitted with Curtains for the Rainy Season

under the direction of the local station agent, entails no out-of-pocket expense for supervision, and carefully selected drivers usually are able to take care of all minor servicing and adjustments. These factors all contribute to low costs.

At Santa Barbara, Cal., for example, the transport company has been operating its own delivery trucks for the past two years. This station receives an average of about 15 tons of merchandise a day, or about 390 tons a month, and all of the deliveries are made with two trucks, one with a part-time driver. The total average cost of operating both of these trucks is $414 a month, or an average cost of $1.06 a ton. When this work was done by the local drayman, the cost was $1.70 a ton, and the service to the public was not nearly so good as it is now. In fact, the change over to the company's operation of its own truck at this point was due to the repeated complaints of poor service from the transport company's patrons. Since the change two years ago, there has been no complaint.

Pick-Up Trucks Can Do Other Work

At some points, it has been found that pick-up and delivery trucks can, without any material increase in out-of-pocket operating expense, undertake other railroad drayage work which otherwise the railroad would have to hire an outside drayman to do. The city of Stockton, Cal., presents an example of this. Stockton receives and forwards an average of 13 tons a day, or 338 tons a month. Two trucks handle this traffic at a total average cost of $432 a month. Previously, the railroad employed an outside drayman to haul between its depot and that of another railroad a very small volume of interline merchandise daily, at an average monthly cost of about $75. By utilizing what otherwise would be idle time of its pick-up trucks, the transport company can do this work at an almost immeasurably small increase in its total monthly truck costs. Deducting this $75 saving from the operating expense of $432 leaves a net expense of $357 chargeable to the pick-up and delivery work, or an average cost of $1.05 a ton. The average cost under the old contract was $1.65.

Frequently, where its own trucks are used, the transport company has found that the net cost of the pick-up and delivery service can be materially reduced by using the trucks for other drayage work related to railroad transportation. The case of Long Beach, Cal., is typical. At this point, the transport company operates three trucks. In addition to pick-up and delivery work, it also has secured the baggage hauling concession from its parent railroad. The revenue from this baggage transfer service just about pays the total expense of operating the three trucks, and the net cost of the pick-up and delivery service, for which the trucks are primarily operated, thus is reduced to practically nothing.

The total amount of money saving involved in the foregoing examples is small, but these comparatively small cities have been used for the sake of simplicity in drawing the illustrations.

Los Angeles, Cal., is the largest city at which the transport company operates its own trucks, and here the large peak load in the late afternoon creates a somewhat different situation. During this peak, as many as 50 pick-up trucks may be used at one time, but probably half of these are needed for only about two hours. In this service, the transport company operates 25 units of its own, and the remainder are rented by the hour from various city draymen who are glad to have this extra work for their equipment. Generally a rate of $1.50 an hour is paid for these trucks, complete with driver, gas, oil, etc. The transport company itself operates only as many units as it is able to keep busy during the entire day.

By operating its own trucks in Los Angeles, supplemented by the hourly rented trucks, the average cost of the pick-up and delivery service has been reduced to $1.48 per ton, as compared to $1.70 per ton when the work was done under contract. Actually, it may be said that the saving is greater than is indicated by this comparison, for the reason that since beginning the operation of its own trucks, the zone within which pick-up service is provided has been greatly enlarged; and, moreover, the operation now is out of four different and widely separated depots in Los Angeles, whereas only one depot was used during the time the local draymen were doing the work. Under present conditions, to do the work by contract would probably cost $1.80 per ton, which is the average contract rate in San Francisco. The present cost of $1.48, it is expected, will be further reduced in the future. The work is now being done largely with very old equipment, expensive to maintain and operate, which was acquired as part of a warehouse property purchased by the transport company. With new equipment soon to be placed in service, the average cost will be reduced to an amount substantially less than $1.48.

For pick-up and delivery work done by contract, the transport company's total annual bill is about $400,000. At the points where it already has changed over to its own trucks, the reduction in expense has averaged about 20 per cent. If, by further extension of its own service, this same percentage reduction can be effected—even on half of its traffic—the saving will be a very substantial amount of money.

A Fleet of Pacific Motor Transport Pick-Up and Delivery Trucks at One of Its Four Los Angeles Depots

New Container and Trailer for Co-ordinated Service

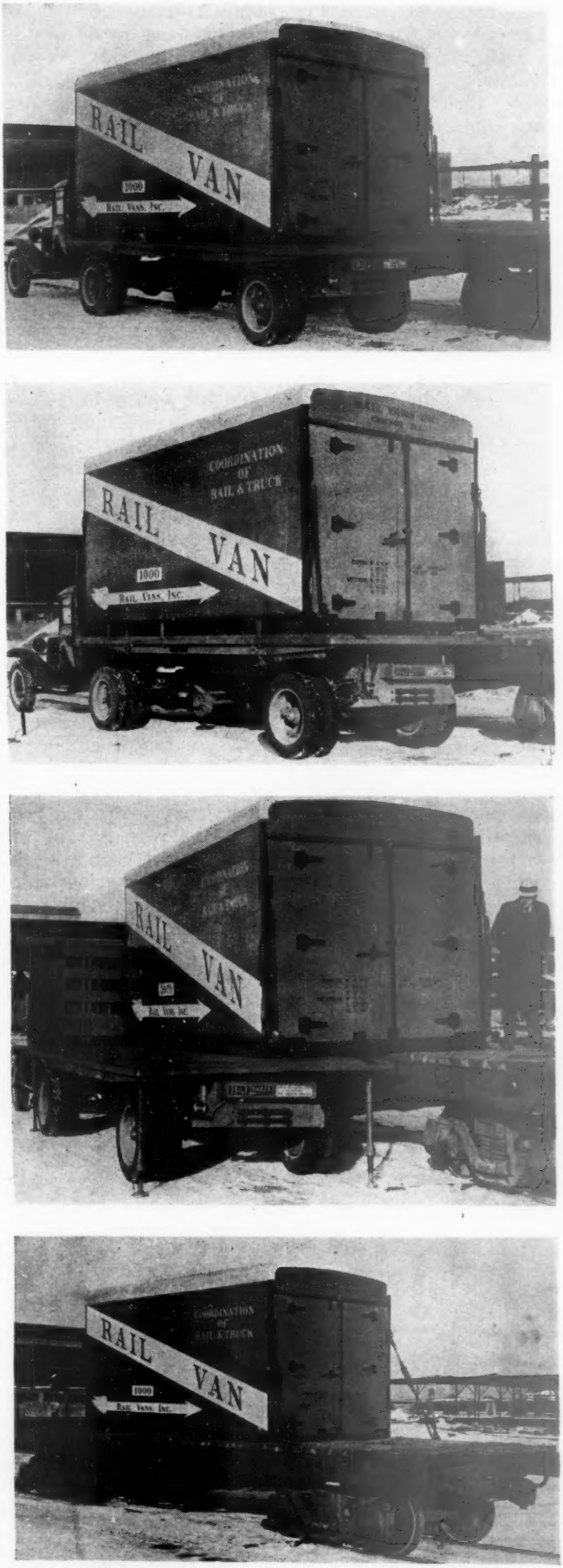
A NEW combination of semi-trailer and freight container designed to facilitate the co-ordination of railway and truck transportation has been developed by the Mt. Vernon Car & Manufacturing Company, Mt. Vernon, Ill., and the B. & J. Trailer Company, Chicago, in co-operation with the Haskelite Manufacturing Corporation, Chicago. In this combination, the freight carrier is a Mt. Vernon container, constructed of Haskelite plywood, which is equipped for movement over the railway on ordinary flat cars and which can readily be transferred to the specially designed trailers for terminal delivery. The equipment has already been placed in service by Rail Vans, Inc., Chicago, for the movement of household goods throughout the eastern and middle western parts of the country, the containers offering the same facilities for the transportation of household goods as are provided by ordinary motor trucks. Under a new tariff recommended by the Central Freight Association, household goods can be handled in these containers over the longer distances at rates considerably lower than those quoted by truckers.

The operating procedure in connection with the use of the new containers provides a simple means for the extension of railway transportation service to the doors of shippers and consignees. Mounted on the semi-trailer chassis, the container is hauled by truck to the door of the shipper for loading. It is then moved to the railroad team track for the transfer of the container to the flat car. The B. & J. semi-trailer has an elevating platform, developed by Harry B. Vested of the trailer company, which makes it possible for one man to handle the transfer of the container from the trailer to the car. Its height being adjustable, the trailer platform can be raised or lowered to the exact height of the flat-car floor, with the trailer platform tilted slightly toward the car. Air-operated jacks lift the container and bring into service the wheels at each corner. By means of a pinch bar, one man can then move the container from the trailer across connecting bridge plates to the flat car.

Here the anchor chains fitted to the container are passed through the stake pockets of the car, hooked into their chain grips and tightened with the turn-buckle, which is part of the anchor chain assembly. In this position, the container is ready to be moved by rail. The entire operation of transferring the container from the trailer to the flat car, or vice versa, can be performed by one man in about 20 min. or by 2 men in 10 min.

The Mt. Vernon containers have a capacity of 823 cu. ft., or 5,500 lb. The outside dimensions are 15 ft. 11½ in. long, 7 ft. 11 in. wide, 7 ft. 11 in. high. Two of these vans can readily be loaded on a 40-ft. flat car. The bodies are constructed of Haskelite plywood, and the weight of the body, complete with all accessories, is only 2,900 lb. The anchoring devices with which the container is fastened to the flat car include shock absorbers, which take up 30 to 50 per cent of horizontal impacts or shocks, eliminating the necessity of crating the container's contents.

The air jacks, with which the containers are equipped, are operative at each corner of the base, each having two rollers. The outside set of rollers is for moving the container lengthwise of the car and the inside set for the moving of the container crosswise of the car. The wheels are drawn up into recesses except during the time when the container is being transferred from trailer to car. They are brought into operation by hand



From Top to Bottom—Container Mounted on Semi-Trailer, As It is Brought to the Railroad; Elevating Platform of Trailer Adjusted to Height of Car Floor, and Container Ready to Roll on Its Wheels; Container Midway in Its Movement from Trailer to Flat-car; Container Fastened in Place on Flat-car, Ready for Its Railroad Movement

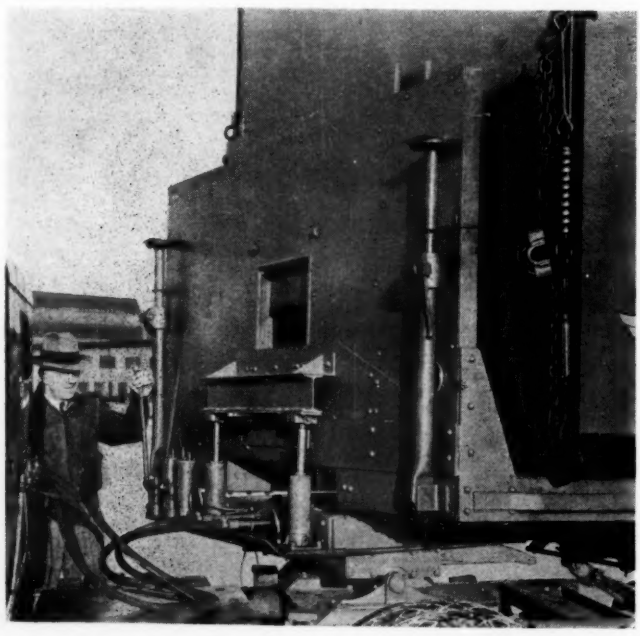
pumping, which lifts the container from the floor of the trailer or flat car, leaving it supported by the wheels.

The trailer designed for use with the Mt. Vernon container is a standard Model 200, six-ton B. & J. semi-trailer with a standardized Martin-type fifth wheel king-pin. The lower fifth wheel is of the rubber insulated type, and the coupling is of the double-jaw, positive-locking type, providing full contact with the king-pin. The trailer has a pressed steel, offset-type frame, and a Timken tubular hollow axle 4 in. in diameter. The braking is by alloy-iron, cast brake drums and Bendix-Westinghouse duo-servo brakes. Manually controlled supports are provided on the trailer so that the tractor can be uncoupled at any time.

The platform of the truck is a steel, safety-tread plate with a front bulkhead to take the lift of the front jacks. At the rear, the jacks are carried in stirrups fastened to the trailer frame, and lift against an I-beam incorporated in the platform substructure. In tilting and adjusting the height of the platform, hand-operated, hydraulic jacks are employed. The pull required on the jack handle is less than 5 lb. The two oil reservoirs at the right front side of the trailer frame are fitted with two hydraulic pumps, operated in tandem by a single lever. High-pressure copper tubing carries the fluid from each pump to the four jacks located at the corners of the trailer frame. Valve handles at the tops of the reservoirs control the height of each pack individually, so that any corner of the platform may be raised or lowered independently of the others.

A short stake of metal construction with rubber body pads has been developed for holding the container in place on the trailer platform. These stakes can be inserted in the pockets of the platform when the container is elevated on its air jacks, but they are securely locked in place by the weight of the container when it has been lowered. Adjustable clamps on the rear end of the platform prevent end movement. Short chains at the corners of the platform engage the chain grips which are a part of the container anchor chain assembly, so that, with the aid of the turn-buckles, the container is held firmly to the platform.

No special equipment is required in the case of the flat cars used to haul these containers. Holes in the car floor or uneven planking do not interfere.



The Trailer Floor is Fully Adjustable as to Height Laterally as Well as Longitudinally, Being Raised by Hand-Operated Hydraulic Jacks

Odds and Ends . . .

Section Foreman's Hobby

J. R. Dellinger, section foreman on the Union Pacific at Kent, Ore., has had plenty to do during his spare time in the last three years. He has made an inlaid checkerboard, containing 3,565 pieces of 12 different kinds of hardwoods.

Slowest Train

The doubtful distinction of having the slowest train in the world is enjoyed, it is believed, by Australia. The Australian train with the most snail-like tendencies is the "tea and sugar" special, which carries supplies from Port Augusta to Kalgoorlie and way points. Under its not too pressing schedule, the train takes a week to travel the 1,051 miles and another week to make the return trip. Occasionally the train carries passengers, who probably are not of the impatient sort.

Matrimonial and Employment Note

Some men, it appears, are willing to go to any length to get a job. This conclusion is compelled by a recent occurrence in the colonization department of the Canadian National at Montreal. Shortly after a sign had been put up advertising farm employment for a married couple, a young man rushed in and asked if the job could be held for him for a few hours. He was asked if he was married. Replying in the negative, he said that if the job were held for him, he would remedy the defect immediately. The few hours of grace were granted, and before the time had expired, the young man returned with a bride, a marriage certificate and two tickets to the place of employment.

Auld Acquaintance Not Forgot

When the Louisville & Nashville completed its $2,000,000 bridge across the Ohio river at Henderson, Ky., on December 3, it remembered two old-timers in the celebration which marked the completion and beginning of operations over the new structure. W. H. Courtney, chief engineer of the road, who as resident engineer supervised the construction of the old bridge across the Ohio river back in 1884, personally applied the last rivet in the new bridge. Shortly afterward, Frank Krug, a retired L. & N. employee, rode as fireman in the cab of the first train which crossed the new bridge. He was assigned to this job because he was fireman on the first train which crossed the old structure. Incidentally, the steel workers employed in the construction of the bridge made a record for rivet-catching which should arouse envy in big league baseball circles. Out of the thousands of rivets which were tossed from furnace men to riveters, only one was muffed by the catcher.

Train vs. Mule

Any kindly feelings which Northern Pacific men have had toward mules were turned into bitter hatred on December 5, when one representative of the mule family succeeded in making a pretty complete mess of part of the Northern Pacific line near Walla Walla, Wash. As we heard it, the story goes like this. A certain mule, locally known by the name "Missouri," found pasture to his liking along the Northern Pacific right-of-way at Dry Creek, 10 miles west of Walla Walla. While he was breakfasting lightly in the middle of the track, a train approached at high speed. The mule remaining oblivious to the peremptory whistling of the locomotive, the engineer had no alternative but to run the animal down while traveling at a speed of about 25 miles an hour. After the abrupt contact of the locomotive pilot and the mule, things happened in quick succession. Tossed to one side, the mule struck a switch stand. The switch was thrown and although the engine passed by safely, three cars were derailed and the track was torn up for some distance. To cap the climax, the mule scrambled to its feet and galloped away with what railroad witnesses claim was a gleefully triumphant bray.

NEWS

Rail Aid Plan Proposed by Perishable Shippers

Association lists 24 proposals in brief filed with National Transportation Committee

The American Fruit and Vegetable Shippers' Association in a brief filed on December 16 with the National Transportation Committee, the investigating body headed by former President Calvin Coolidge, lists 24 proposals, the adoption of which, the Association believes, would tend to improve the present railroad situation. An abstract of that section of the brief containing the proposals follows:

1. General reduction of freight rates and refrigeration charges to stimulate the free flow of traffic.
2. Reduction of demurrage charges to encourage use of idle cars now standing unused with consequent loss to the railroads.
3. Reduction of railroad wage scales in line with other wage revisions.
4. Mandatory consolidation of railroads under the supervision of the I. C. C.
5. Pooling of all railroad equipment, especially refrigerator cars.
6. Pending consolidations passenger and freight terminals should be jointly used by all railroads.
7. Elimination of duplicate service over competing lines between similar points through pooling.
8. Use of Railway Express Agency trucks to provide pick up and delivery service, thereby placing many idle trucks at work and stimulating employment.
9. Use of trucks for short-haul traffic by railroads to recover lost traffic.
10. Regulation of truck transportation on a basis equal with railroad regulation.
11. Withdrawal of the government from barge operation on waterways in competition with railroads and entry of the railroads into barge activity.
12. Lifting of excessive taxes from the railroads and discontinuance of government subsidies to competing transport agencies.
13. Readjustment of passenger fares to meet bus competition by having graduated fares of first, second and third class fares, first to cover Pullman and parlor car service, second chair cars and third day coach service. The charge on the latter should be lower than bus fares.
14. Elimination of duplicate express passenger service through pooling.
15. Entry of the railroads into the freight forwarding business, now handled by outside companies at a profit.
16. Specific rates for each commodity included in mixed carloads, giving the railroads more parity with trucks.
17. Adjustment of freight concentration privileges to meet truck competition by using trucks for delivery of commodities for conditioning or concentration, inbound rates to be refunded to shipper as at present when commodity is tendered for reshipment.
18. Amendment of Section 1, Paragraph 3, of the interstate commerce act so as to exclude store-door pickup and local delivery service when performed by railroads.
19. Amendment of section so as not to prohibit railroads from meeting motor or water rates, at the same time maintaining higher rates for the same service where there is no competition.
20. Amendment of Section 5, Sub-Paragraphs 9, 10 and 11, to include water lines and motor vehicles.
21. Permission to be given to reduce rates on one day's notice and to advance them at a month's notice.
22. Retroactive repeal of the recapture provision of the interstate commerce act.
23. Elimination of valuation expenses owing to rapid fluctuation of values.
24. Elimination of costly passenger and freight rate files for the public at railroad expense, now required by the I. C. C.

In conclusion the brief recommended that the railroads should concentrate more on the freight business than the passenger business, the former being more lucrative. In 1931, the brief stated, the railroads spent $1.10 to secure each $1 of passenger revenue. In the case of freight they spent only 68 cents to obtain each $1 of freight revenue.

Additional Rail and Barge Rates Asked

The Mississippi Valley Barge Line has applied to the Interstate Commerce Commission for an order establishing joint rail-barge and barge-rail routes and rates via ports on the Ohio and Mississippi rivers in connection with the Chesapeake & Ohio and other rail lines to and from points in Kentucky, Tennessee, Mississippi, Alabama, Louisiana, and eastern Missouri.

Experimental Low Rate in West

As a means of determining the effect of low rates in stimulating traffic, western railroads on February 1 will reduce round trip passenger fares 16⅔ per cent, equal to one and two-thirds times the one-way fare. This reduction will apply between points in the western and southwestern passenger territories. Tickets will be on sale daily and will have a return limit of 10 days.

Chesapeake Beach Asks State Authority for Ferry Extension

The Chesapeake Beach Railway has filed with the Public Service Commission of Maryland an application for an intrastate certificate of public convenience and necessity for its proposed ferry extension across Chesapeake Bay, at the same time stating that it neither admitted nor denied the jurisdiction of the Public Service Commission. The filing of this application has been motivated by two purposes, the company stated. The first was a desire on the part of the carrier to maintain friendly and harmonious relations with the state authorities. The second was to place its right to handle intrastate traffic beyond the realm of future litigation. The carrier already has by virtue of the certificate for the ferry extension granted by the Interstate Commerce Commission and upheld by the Supreme Court of the United States the right to construct the extension. It also has the right to handle interstate traffic, including automobiles moving via the ferry.

Members of U.S. Chamber Approve Railway Program

Proposals designed to put carriers on sound basis endorsed by overwhelming vote

A twelve-point program designed to put the railroads on a sound basis has been approved by an overwhelming vote of the business organizations in the membership of the Chamber of Commerce of the United States, it is announced by President Henry I. Harriman.

The program on which the vote was taken was formulated by the Chamber's Committee on Railroads. Broadly speaking, the committee's recommendations call for the restoration of railroad credit through changes in rate-making policies, removal of hampering restrictions upon railroad management, and the establishment of fair regulation. The proposals include, among other things, the retroactive repeal of the recapture clause of Section 15a, the opening of water and highway transportation to the railroads on an equal basis with water and highway carriers, and the amendment of the long-and-short-haul clause to place upon the railroads responsibility for determining whether proposed rates would be reasonably compensatory.

Business organizations in each of the 48 states are represented in the returns. The twelve proposals submitted and the vote on each were as follows:

1. Financial stability of railroads requires replacement of Section 15a of the Interstate Commerce Act with a provision directing the commission, in fixing just and reasonable rates, to consider effects on traffic movement, on provision of efficient service at lowest consistent cost, and upon reasonable average return that will permit in time of general business activity reasonable reduction of indebtedness and accumulation of adequate reserves.

For 2184 Against 67

2. The existing recapture clause of Section 15a should be retroactively repealed.

For 2157½ Against 95½

3. The elaborate processes of valuation should cease upon completion of the original valuation of a railroad with the commission thereafter merely keeping itself informed as to changes in plant.

For 2225½ Against 46½

4. Regulation of railroads should be reduced to the point where it will be confined to assurance of fair rates and of public safety and will avoid interference with functions belonging to management.

For 2139 Against 83

(*Continued on page 960*)

Operating Statistics of Large Steam Railways—Selected Items for the Month of October, 1932,

Region, road and year	Average miles of road operated	Train-miles	Locomotive-miles: Principal and helper	Locomotive-miles: Light	Car-miles: Loaded (thousands)	Car-miles: Per cent loaded	Ton-miles (thousands): Gross. Excluding locomotives and tenders	Ton-miles (thousands): Net. Revenue and non-revenue	Average number of locomotives on line: Serviceable	Unserviceable	Per cent unserviceable	Stored
New England Region:												
Boston & Albany 1932	402	119,028	124,256	8,278	3,240	67.6	167,171	56,105	59	53	47.5	12
1931	402	144,988	152,671	13,358	4,044	66.6	210,389	71,400	75	58	43.8	21
Boston & Maine 1932	2,062	263,503	299,027	26,506	8,961	67.9	475,916	176,361	135	154	53.2	23
1931	2,066	320,002	366,452	36,105	10,902	67.8	572,321	211,892	168	119	41.4	26
N. Y., New H. & Hartf. 1932	2,038	336,869	409,161	23,631	10,869	65.4	584,840	216,985	214	138	39.1	10
1931	2,042	423,844	500,484	25,450	14,005	63.8	769,866	290,176	241	103	30.1	13
Great Lakes Region:												
Delaware & Hudson 1932	848	212,333	284,904	31,767	6,936	60.0	439,771	197,206	257	23	8.3	157
1931	852	272,762	357,400	40,448	8,691	59.6	555,205	251,987	244	27	10.0	118
Del., Lack. & Western 1932	998	346,507	382,232	50,980	11,470	65.9	657,059	257,190	214	59	21.7	60
1931	998	421,720	467,264	53,580	13,827	65.6	795,698	318,701	212	57	21.3	29
Erie (incl. Chi. & Erie) 1932	2,316	697,492	735,678	43,826	28,818	60.0	1,841,822	689,553	334	165	33.0	100
1931	2,316	779,243	817,530	72,859	34,291	60.5	2,143,080	810,052	376	113	23.0	95
Grand Trunk Western 1932	1,023	182,730	185,008	1,636	4,342	60.9	265,287	73,031	91	63	41.1	27
1931	1,021	206,956	208,311	1,162	4,939	60.7	291,580	101,162	110	41	26.8	36
Lehigh Valley 1932	1,343	367,376	387,002	35,796	11,496	63.3	710,371	294,198	188	124	39.8	31
1931	1,343	454,174	481,166	42,172	14,028	63.3	877,264	376,082	215	150	41.0	28
Michigan Central 1932	2,039	341,753	341,938	8,797	9,705	58.7	599,376	204,158	115	87	43.0	28
1931	1,869	391,839	392,284	9,452	11,729	60.0	687,771	233,165	148	71	32.4	54
New York Central 1932	6,181	1,505,423	1,620,366	118,719	53,912	59.5	3,437,592	1,396,088	590	690	53.9	45
1931	6,096	1,678,323	1,820,085	103,316	63,345	60.5	3,930,560	1,579,060	820	542	39.8	214
New York, Chi. & St. L. 1932	1,661	448,004	461,965	5,646	13,725	60.9	805,781	279,741	138	108	44.0	39
1931	1,660	480,182	485,816	2,175	15,227	61.2	885,217	311,072	172	69	28.8	57
Pere Marquette 1932	2,286	310,130	322,984	3,004	7,224	58.3	480,726	187,967	128	47	26.8	25
1931	2,241	317,895	333,714	3,208	8,020	62.2	489,052	193,973	146	30	16.8	38
Pitts. & Lake Erie 1932	235	60,472	62,301	2,503	2,553	56.5	225,882	126,461	29	55	65.0	4
1931	235	77,577	78,578	1,043	2,963	55.7	248,144	135,338	56	24	29.5	32
Wabash 1932	2,497	499,186	508,579	9,785	15,508	63.6	874,698	298,523	182	180	49.8	31
1931	2,497	598,728	630,065	11,115	18,665	63.1	1,079,482	369,376	260	154	37.1	65
Central Eastern Region:												
Baltimore & Ohio 1932	6,277	1,369,913	1,620,998	178,485	39,771	58.8	2,729,880	1,182,732	734	589	44.5	129
1931	6,285	1,560,040	1,814,959	197,122	47,119	59.3	3,185,107	1,397,424	1,006	386	27.7	282
Big Four Lines 1932	2,790	623,550	640,801	18,166	18,219	59.1	1,234,029	565,728	265	175	39.8	14
1931	2,792	634,075	654,651	16,685	19,286	60.6	1,241,319	560,086	268	164	37.9	52
Central of New Jersey 1932	692	149,516	163,228	27,367	4,881	55.9	346,541	160,984	115	63	35.6	53
1931	692	187,665	207,033	34,794	5,871	55.5	411,605	185,161	123	54	30.7	40
Chicago & Eastern Ill. 1932	939	173,084	173,457	2,985	3,677	62.0	240,895	104,938	77	85	52.5	34
1931	939	178,031	178,206	2,689	4,298	63.7	266,548	113,993	89	72	45.0	40
Elgin, Joliet & Eastern 1932	447	64,307	64,725	1,031	1,535	56.7	124,368	59,853	81	9	10.2	39
1931	447	82,869	85,559	2,599	1,949	57.8	154,627	75,566	84	7	7.9	27
Long Island 1932	396	36,552	37,756	14,366	416	53.1	30,669	11,884	39	10	20.8	8
1931	400	49,987	51,684	17,301	582	52.2	43,019	15,888	44	5	10.2	3
Pennsylvania System 1932	10,528	2,721,204	3,029,942	309,777	94,536	60.5	6,326,216	2,690,112	1,951	563	22.4	870
1931	10,628	3,138,523	3,524,477	357,725	112,101	62.2	7,374,937	3,208,391	2,268	266	10.5	942
Reading 1932	1,454	418,228	453,715	48,534	11,475	57.7	847,161	401,200	271	115	29.8	92
1931	1,450	521,487	565,468	57,443	14,719	57.9	1,087,434	513,983	325	86	20.9	79
Pocahontas Region:												
Chesapeake & Ohio 1932	3,136	890,678	935,324	31,783	38,308	53.6	3,367,408	1,823,602	534	142	21.0	213
1931	3,106	1,013,019	1,065,901	36,533	39,629	53.9	3,515,581	1,892,305	625	67	9.7	252
Norfolk & Western 1932	2,258	602,025	628,500	28,963	22,827	57.1	1,920,779	1,002,532	424	61	12.6	180
1931	2,272	694,297	753,473	32,313	26,043	57.6	2,204,843	1,153,590	454	36	7.3	153
Southern Region:												
Atlantic Coast Line 1932	5,144	424,276	424,896	5,694	8,472	65.4	439,119	156,506	373	92	19.8	158
1931	5,144	519,248	521,167	7,864	11,158	64.1	593,923	215,291	385	91	19.2	119
Central of Georgia 1932	1,900	196,281	197,784	2,741	4,368	69.4	232,041	88,095	87	56	39.2	3
1931	1,900	215,850	216,908	3,961	5,177	67.9	274,866	102,516	99	48	32.5	3
Ill. Cent. (incl. Y. & M. V.) 1932	6,658	1,399,696	1,418,059	23,489	33,169	58.6	2,260,936	928,647	660	270	29.0	26
1931	6,670	1,497,644	1,513,900	26,532	37,088	59.3	2,502,925	981,984	769	153	16.6	62
Louisville & Nashville 1932	5,182	961,875	1,033,221	31,304	21,072	56.9	1,511,406	712,159	390	321	45.2	107
1931	5,263	1,104,315	1,180,019	32,887	24,450	57.8	1,720,565	807,626	508	191	27.3	138
Seaboard Air Line 1932	4,377	419,477	422,753	2,443	9,171	61.9	530,463	191,022	256	42	14.1	67
1931	4,466	452,044	458,671	5,768	10,871	66.1	597,084	219,556	254	39	13.3	59
Southern 1932	6,656	1,071,073	1,083,259	17,570	24,839	65.4	1,356,423	496,849	728	226	23.7	254
1931	6,675	1,195,530	1,210,424	19,706	28,812	65.6	1,562,074	589,100	782	179	18.6	229
Northwestern Region:												
Chi. & North Western 1932	8,443	1,014,772	1,076,140	24,703	25,207	60.9	1,556,161	504,271	620	207	25.0	210
1931	8,459	1,178,612	1,239,819	26,276	29,287	59.4	1,801,645	644,971	666	138	17.2	160
Chicago Great Western 1932	1,463	234,264	236,258	25,353	7,372	59.8	454,308	160,658	69	41	37.1	6
1931	1,459	263,572	263,948	27,321	8,899	60.9	530,661	195,444	76	40	34.5	6
Chi., Milw., St. P. & Pac. 1932	11,246	1,247,835	1,325,179	60,295	32,414	59.1	2,093,566	834,967	755	157	17.2	331
1931	11,249	1,399,647	1,486,911	69,395	38,116	60.8	2,351,309	918,820	757	154	16.9	321
Chi., St. P., Minneap. & Om. 1932	1,714	218,221	228,325	10,677	4,554	64.4	275,328	108,633	142	30	17.3	68
1931	1,714	240,044	262,403	12,169	5,226	63.5	308,681	121,567	152	23	13.3	70
Great Northern 1932	8,430	785,914	795,194	25,274	25,604	60.5	1,637,999	627,147	504	105	17.2	126
1931	8,319	836,774	847,672	29,599	29,568	59.5	1,914,518	739,038	477	151	24.1	102
Minneap., St. P. & S. St. M. 1932	4,325	350,562	355,420	2,004	7,458	67.0	417,833	178,707	146	50	25.3	16
1931	4,323	369,460	376,248	4,692	8,809	65.0	488,783	196,632	145	61	29.7	22
Northern Pacific 1932	6,397	544,015	583,471	35,178	16,230	67.7	939,103	391,160	396	133	25.1	97
1931	6,458	651,767	687,327	39,301	20,071	68.7	1,124,675	454,796	401	120	23.1	67
Oreg.-Wash. R. R. & Nav. 1932	2,185	149,251	155,058	9,348	3,649	65.4	212,978	79,257	86	40	31.9	25
1931	2,220	177,209	184,276	11,352	4,593	68.1	269,494	111,297	118	16	11.8	48
Central Western Region:												
Alton 1932	951	203,147	209,074	1,184	4,347	55.5	291,769	93,168	65	40	38.0	8
1931	1,000	225,270	238,756	1,871	5,251	61.0	326,772	120,108	87	25	22.1	16
Atch., Top. & S. Fe (incl. P. & S. F.) 1932	11,600	1,686,346	1,805,482	92,860	48,374	59.1	3,092,326	914,447	726	217	23.0	222
1931	11,546	1,689,339	1,838,801	92,501	53,122	62.2	3,276,506	1,073,667	746	203	21.4	219
Chi., Burl. & Quincy 1932	9,201	1,171,101	1,216,492	41,045	30,793	57.8	1,850,630	762,895	494	134	21.4	36
1931	9,257	1,243,466	1,286,742	42,723	36,674	59.1	2,196,036	930,469	568	121	17.6	47
Chi., Rock I. & Pac. (incl. Chi., Rock I. & Gulf) 1932	8,333	1,034,462	1,045,502	4,428	22,704	60.7	1,377,472	516,911	474	141	23.0	135
1931	8,343	1,150,266	1,181,471	8,423	28,093	62.0	1,702,888	663,674	515	151	22.6	128
Denver & R. G. Wn. 1932	2,514	354,823	394,259	44,741	9,782	58.5	601,996	195,407	213	25	10.5	34
1931	2,557	349,314	383,215	41,141	9,500	59.5	573,635	202,616	227	17	7.0	39
Los Angeles & Salt Lake 1932	1,240	166,876	186,654	23,575	5,014	63.5	290,456	102,913	82	32	28.0	11
1931	1,241	176,216	190,569	17,513	5,388	67.9	291,896	105,771	100	14	12.2	30
Oregon Short Line 1932	2,471	302,139	311,040	15,571	7,754	59.0	493,245	173,794	156	35	18.3	44
1931	2,530	319,332	331,688	20,488	9,340	59.7	592,239	216,169	173	6	3.3	57
Southern Pacific-Pacific Lines 1932	8,894	1,198,216	1,284,871	135,701	37,693	59.4	2,375,671	724,257	573	317	35.6	162
1931	8,940	1,253,174	1,358,336	160,703	39,975	61.7	2,472,922	801,988	666	278	29.5	199
Union Pacific 1932	3,768	1,185,674	1,214,275	50,074	40,792	57.9	2,544,445	749,621	387	71	15.5	112
1931	3,768	1,154,240	1,181,030	49,949	43,528	58.6	2,696,373	829,867	427	32	6.9	142
Southwestern Region:												
Gulf, Colo. & S. Fe 1932	1,943	186,783	190,841	3,734	5,411	65.0	325,114	132,475	110	18	14.4	45
1931	1,965	198,952	206,201	4,495	6,135	66.4	364,324	151,136	100	26	20.3	31
Mo.-Kans.-Texas Lines 1932	3,282	337,438	339,569	4,561	9,262	61.3	548,044	203,452	152	74	32.8	74
1931	3,282	356,326	359,107	4,756	10,282	60.1	614,714	227,512	172	53	23.6	83
Missouri Pacific 1932	7,409	1,222,692	1,256,913	28,967	31,181	59.7	1,977,984	751,647	470	119	20.2	153
1931	7,407	1,237,544	1,272,818	34,434	33,664	60.9	2,129,982	824,909	510	86	14.4	172
St. Louis-San Francisco 1932	5,192	626,159	630,326	7,381	13,800	58.5	871,796	334,608	412	71	14.7	145
1931	5,175	687,356	692,569	7,781	15,677	59.3	968,738	364,606	398	81	16.9	107
St. Louis Southwestern Lines 1932	1,902	189,313	191,154	2,766	4,501	67.1	254,215	97,042	109	23	17.6	32
1931	1,902	196,651	197,161	2,645	4,648	65.7	259,309	96,042	116	28	19.2	42
Texas & New Orleans 1932	4,588	459,609	460,808	4,038	9,462	61.4	562,688	194,371	234	73	23.9	58
1931	4,650	511,101	512,824	1,159	11,835	61.5	723,162	272,758	226	100	30.6	45
Texas & Pacific 1932	1,946	242,679	242,679	1,220	6,755	64.3	398,682	145,845	159	88	35.5	31
1931	1,946	283,587	283,587	1,680	7,747	64.3	461,442	168,596	186	57	23.4	55

Compiled by Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

Compared with October, 1931, for Roads with Annual Operating Revenues Above $25,000,000

Region, road and year		Average number of freight cars on line: Home	Foreign	Total	Per cent unserviceable	Gross ton-miles per train-hour, excluding locomotives and tenders	Gross ton-miles per train-mile, excluding locomotives and tenders	Net ton-miles per train-mile	Net ton-miles per loaded car-mile	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per miles of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotives and tenders	Locomotive-miles per locomotive-day
New England Region:														
Boston & Albany	1932	4,482	2,839	7,321	35.6	21,930	1,404	471	17.3	247	21.1	4,505	154	38.2
	1931	3,661	3,360	7,021	15.7	22,158	1,451	492	17.7	328	27.9	5,733	158	40.3
Boston & Maine	1932	11,069	7,470	18,539	17.5	24,044	1,811	671	19.7	308	23.0	2,765	103	36.3
	1931	10,483	8,268	18,751	11.3	22,911	1,788	662	19.4	365	27.6	3,309	106	45.3
N. Y., New H. & Hartf.	1932	16,313	10,523	26,836	9.7	25,277	1,736	644	20.0	261	20.0	3,435	112	39.7
	1931	16,127	14,308	30,435	4.9	25,353	1,816	685	20.7	308	23.3	4,583	104	49.3
Great Lakes Region:														
Delaware & Hudson	1932	11,190	2,656	13,846	4.5	25,990	2,071	929	28.4	459	26.9	7,501	118	36.5
	1931	9,879	3,937	13,816	4.4	25,956	2,035	924	29.0	588	34.1	9,540	118	47.3
Del., Lack. & Western	1932	17,790	4,205	21,995	10.9	26,686	1,896	742	22.4	377	25.5	8,312	136	51.2
	1931	17,780	5,330	23,110	8.8	24,838	1,887	756	23.0	445	29.4	10,300	142	62.4
Erie (incl. Chi. & Erie)	1932	35,824	12,080	47,904	5.5	40,527	2,641	989	23.9	464	32.3	9,604	99	50.4
	1931	34,961	13,679	48,640	4.4	40,281	2,750	1,040	23.6	537	37.6	11,282	100	58.7
Grand Trunk Western	1932	5,452	7,716	13,168	13.7	22,668	1,452	400	16.8	179	17.5	2,303	114	39.0
	1931	4,766	7,428	12,194	10.4	23,692	1,409	489	20.5	268	21.5	3,195	99	44.8
Lehigh Valley	1932	19,365	5,078	24,443	18.3	31,596	1,934	801	25.6	388	24.0	7,065	132	43.6
	1931	21,805	6,439	28,244	10.5	30,252	1,932	828	26.8	430	25.3	9,035	131	46.3
Michigan Central	1932	23,706	15,618	39,324	10.2	29,793	1,754	597	21.0	167	13.6	3,230	122	56.2
	1931	25,583	16,229	41,812	6.8	30,458	1,755	595	19.9	180	15.1	4,024	108	49.2
New York Central	1932	84,749	56,854	141,603	20.7	34,079	2,283	927	25.9	318	20.6	7,286	100	43.8
	1931	77,671	64,802	142,473	13.5	34,073	2,342	941	24.9	358	23.7	8,356	97	45.6
New York, Chi. & St. L.	1932	15,490	6,735	22,225	13.6	30,321	1,799	624	20.4	406	32.7	5,434	99	61.3
	1931	15,951	7,398	23,349	9.8	29,135	1,844	648	20.4	430	34.4	6,044	100	65.3
Pere Marquette	1932	13,831	4,611	18,442	3.8	24,577	1,550	606	26.0	329	21.7	2,652	90	60.2
	1931	12,913	4,387	17,300	3.5	23,295	1,538	610	24.2	362	24.0	2,792	91	61.9
Pitts. & Lake Erie	1932	18,041	7,056	25,097	26.5	52,567	3,735	2,091	49.5	163	5.8	17,346	96	24.9
	1931	19,447	6,043	25,490	13.4	38,888	3,199	1,745	45.7	171	6.7	18,586	98	32.1
Wabash	1932	19,283	7,607	26,890	9.1	33,874	1,752	598	19.2	358	29.3	3,857	107	46.1
	1931	21,507	8,852	30,359	8.8	33,226	1,803	617	19.8	392	31.4	4,773	105	50.0
Central Eastern Region:														
Baltimore & Ohio	1932	97,529	17,898	115,427	13.0	25,584	1,993	863	29.7	331	18.9	6,078	147	43.9
	1931	94,715	20,861	115,576	7.5	25,669	2,042	896	29.7	390	22.2	7,173	140	46.6
Big Four Lines	1932	21,674	19,604	41,278	17.6	32,653	1,979	907	31.1	442	24.1	6,540	110	48.3
	1931	25,944	18,685	44,629	8.6	31,566	1,958	883	29.0	405	23.0	6,472	108	50.1
Central of New Jersey	1932	17,294	7,004	24,298	21.0	29,065	2,318	1,077	33.0	214	11.6	7,504	125	34.5
	1931	16,493	7,544	24,037	12.1	27,069	2,193	987	31.5	248	14.2	8,629	133	44.0
Chicago & Eastern Ill.	1932	6,088	2,146	8,234	17.2	23,006	1,392	606	28.5	411	23.2	3,605	128	35.0
	1931	6,021	2,412	8,433	13.3	25,578	1,497	640	26.5	436	25.8	3,916	124	36.2
Elgin, Joliet & Eastern	1932	9,670	3,886	13,556	13.9	16,741	1,934	931	39.0	142	6.4	4,319	117	23.6
	1931	9,330	3,844	13,174	7.2	15,401	1,866	912	38.8	185	8.3	5,453	124	31.3
Long Island	1932	779	3,861	4,640	1.1	6,548	839	325	28.6	83	5.5	968	308	34.3
	1931	792	5,051	5,843	.9	6,879	861	318	27.3	88	6.2	1,280	319	45.4
Pennsylvania System	1932	248,999	48,387	297,386	8.4	32,295	2,325	989	28.5	292	16.9	8,242	122	42.9
	1931	241,071	55,659	296,730	6.0	31,632	2,350	1,022	28.6	349	19.6	9,738	120	49.4
Reading	1932	38,825	7,693	46,518	15.9	23,217	2,026	959	35.0	278	13.8	8,903	146	41.9
	1931	35,755	10,317	46,072	5.6	24,038	2,085	986	34.9	360	17.8	11,432	134	48.9
Pocahontas Region:														
Chesapeake & Ohio	1932	42,689	9,538	52,227	2.3	50,699	3,781	2,047	47.6	1,126	44.1	18,760	73	46.2
	1931	45,322	9,966	55,288	2.6	45,138	3,470	1,868	47.8	1,104	42.9	19,654	76	51.4
Norfolk & Western	1932	36,846	4,468	41,314	2.6	46,160	3,191	1,665	43.9	783	31.2	14,321	108	43.8
	1931	36,191	5,350	41,541	1.0	45,254	3,176	1,662	44.3	896	35.1	16,379	105	51.8
Southern Region:														
Atlantic Coast Line	1932	28,518	4,429	32,947	13.1	17,513	1,035	369	18.5	153	12.7	981	119	29.9
	1931	28,119	5,080	33,199	5.9	18,514	1,144	415	19.3	209	16.9	1,350	116	35.9
Central of Georgia	1932	7,176	1,886	9,062	25.2	20,260	1,182	449	20.2	314	22.4	1,496	127	45.2
	1931	7,674	2,123	9,797	18.4	20,535	1,273	475	19.8	338	25.1	1,741	124	48.5
Ill. Cent. (inc. Y. & M. V.)	1932	52,845	14,819	67,664	20.2	24,726	1,615	663	28.0	443	27.0	4,499	134	50.0
	1931	52,204	14,949	67,153	13.0	25,053	1,671	656	26.5	472	30.1	4,749	129	53.9
Louisville & Nashville	1932	50,228	6,600	56,828	23.2	22,961	1,571	740	33.8	404	21.0	4,434	137	48.3
	1931	50,114	6,991	57,105	16.2	22,859	1,558	731	33.0	456	23.9	4,950	141	56.0
Seaboard Air Line	1932	15,371	3,803	19,174	14.5	19,918	1,265	455	20.8	321	24.9	1,408	128	46.0
	1931	16,965	4,238	21,203	11.8	19,499	1,321	486	20.2	334	25.0	1,586	129	51.1
Southern	1932	54,727	9,615	64,342	15.5	20,264	1,266	464	20.0	249	19.0	2,408	148	37.3
	1931	55,798	11,128	66,926	13.7	20,187	1,307	493	20.4	284	21.2	2,847	148	41.3
Northwestern Region:														
Chi. & North Western	1932	45,504	19,646	65,150	9.3	22,921	1,534	497	20.0	250	20.5	1,927	120	42.9
	1931	44,849	20,451	65,300	8.2	22,089	1,529	547	22.0	319	24.3	2,460	125	50.8
Chicago Great Western	1932	5,095	3,528	8,623	13.2	32,833	1,939	686	21.8	601	46.1	3,542	132	76.5
	1931	4,695	3,915	8,610	7.9	33,727	2,013	742	22.0	732	54.7	4,321	126	81.1
Chi., Milw., St. P. & Pac.	1932	62,157	13,197	75,354	3.8	25,009	1,678	669	25.8	357	23.5	2,395	121	49.0
	1931	62,548	14,200	76,748	2.2	24,835	1,680	656	24.1	386	26.4	2,635	117	55.1
Chi., St. P., Minneap. & Om.	1932	2,169	7,237	9,406	9.3	17,930	1,262	498	23.9	373	24.3	2,045	114	45.0
	1931	2,215	8,427	10,642	13.0	18,403	1,286	506	23.3	368	24.9	2,288	114	50.5
Great Northern	1932	43,902	12,193	56,095	4.6	30,669	2,084	798	24.5	361	24.3	2,400	118	43.5
	1931	44,049	12,754	56,803	6.6	31,649	2,288	883	25.0	420	28.2	2,866	117	45.0
Minneap., St. P. & S. St. M.	1932	20,507	2,811	23,318	4.5	18,371	1,192	510	24.0	247	15.4	1,333	108	58.8
	1931	20,503	3,194	23,697	3.9	19,528	1,323	532	22.3	268	18.5	1,467	102	59.5
Northern Pacific	1932	42,816	4,537	47,353	9.3	25,397	1,726	719	24.1	266	16.3	1,972	147	37.7
	1931	41,361	5,352	46,713	10.2	24,811	1,726	698	22.7	314	20.2	2,272	141	44.9
Oreg.-Wash. R. R. & Nav.	1932	9,262	2,076	11,338	8.1	22,301	1,427	531	21.7	225	15.9	1,170	146	42.0
	1931	8,206	2,733	10,939	4.1	23,520	1,521	628	24.2	328	19.9	1,617	147	47.0
Central Western Region:														
Alton	1932	5,138	4,514	9,652	13.4	27,276	1,436	459	21.4	311	26.2	3,161	120	64.6
	1931	10,569	3,562	14,131	20.5	26,723	1,451	533	22.9	274	19.6	3,875	123	69.9
Atch., Top. & S. Fe (incl. P. & S. F.)	1932	67,657	9,472	77,129	10.6	32,968	1,834	542	18.9	382	34.2	2,543	104	65.0
	1931	67,078	11,314	78,392	9.4	33,720	1,940	636	20.2	442	35.2	3,000	100	65.7
Chi., Burl. & Quincy	1932	43,115	13,363	56,478	8.6	25,524	1,580	651	24.8	436	30.4	2,675	125	64.6
	1931	45,534	14,148	59,682	6.6	26,053	1,766	748	25.4	503	33.5	3,243	117	62.2
Chi., Rock I. & Pac. (incl. Chi., Rock I. & Gulf)	1932	41,069	9,480	50,549	17.3	21,493	1,332	500	22.8	330	23.9	2,001	139	55.1
	1931	40,251	11,634	51,885	11.2	22,836	1,480	577	23.6	413	28.2	2,566	130	57.6
Denver & R. G. Wn.	1932	13,250	4,593	17,843	4.2	24,442	1,697	551	20.0	353	30.2	2,507	163	59.6
	1931	12,928	4,184	17,112	3.2	22,610	1,642	580	21.3	382	30.1	2,556	160	56.1
Los Angeles & Salt Lake	1932	5,068	1,112	6,180	7.3	27,886	1,741	617	20.5	537	41.2	2,677	141	59.8
	1931	4,430	1,348	5,778	2.8	26,908	1,656	600	19.6	591	44.3	2,750	134	58.9
Oregon Short Line	1932	10,326	4,307	14,633	7.2	24,852	1,633	575	22.4	383	29.0	2,268	115	55.3
	1931	10,090	6,005	16,095	5.5	27,593	1,855	677	23.1	433	31.3	2,756	107	63.3
Southern Pacific-Pacific Lines	1932	40,253	20,328	60,581	14.0	30,328	1,983	604	19.2	386	33.8	2,627	107	51.5
	1931	42,455	21,313	63,768	12.7	28,567	1,973	640	20.1	406	32.8	2,894	111	51.9
Union Pacific	1932	24,348	9,410	33,758	17.9	45,476	2,146	632	18.4	716	67.4	6,417	110	89.0
	1931	24,204	10,872	35,076	7.9	45,943	2,336	719	19.1	763	68.3	7,104	108	86.5
Southwestern Region:														
Gulf, Colo. & S. Fe	1932	11,070	2,416	13,486	6.6	26,331	1,741	709	24.5	317	19.9	2,199	103	49.0
	1931	11,723	2,460	14,183	2.8	27,613	1,831	760	24.6	344	21.0	2,481	94	54.0
Mo.-Kans.-Texas Lines	1932	11,983	2,461	14,444	4.3	26,092	1,624	603	22.0	454	33.7	2,000	91	49.2
	1931	12,172	3,773	15,945	4.6	26,534	1,725	638	22.1	460	34.6	2,236	82	52.1
Missouri Pacific	1932	28,425	16,568	44,993	14.9	26,677	1,618	615	24.1	539	37.4	3,273	132	70.4
	1931	30,625	15,326	45,951	12.2	27,146	1,721	667	24.5	579	38.8	3,592	120	70.7
St. Louis-San Francisco	1932	25,880	5,380	31,260	7.1	21,508	1,392	534	24.2	345	24.4	2,079	135	42.6
	1931	26,745	5,853	32,598	3.3	21,201	1,409	530	23.3	361	26.1	2,273	132	47.2
St. Louis Southwestern Lines	1932	4,446	1,738	6,184	13.9	21,844	1,343	513	21.6	506	35.0	1,646	111	47.3
	1931	5,786	3,014	8,800	10.1	21,380	1,319	488	20.7	352	25.9	1,629	110	44.8
Texas & New Orleans	1932	8,939	10,020	18,959	6.2	19,334	1,224	423	20.5	331	26.2	1,366	99	48.7
	1931	12,137	11,061	23,198	7.9	20,883	1,415	534	23.0	379	26.8	1,892	93	50.8
Texas & Pacific	1932	5,612	4,180	9,792	11.3	22,318	1,643	601	21.6	480	34.6	2,418	91	31.8
	1931	5,884	4,582	10,466	12.3	23,085	1,627	595	21.8	520	37.1	2,795	90	37.9

NEWS

(*Continued from page 957*)

5. Water transportation as well as highway transportation should be opened to railroads on an equal basis with water and highway carriers.
For 1953 Against 212

6. Railroads should be allowed to establish new rates quickly in order to meet competition from other forms of transportation.
For 1962½ Against 273½

7. The long-and-short-haul clause should be amended to place upon the railroads responsibility for determining whether proposed rates will be reasonably compensatory for the services performed.
For 1808 Against 406

8. Railroad management should make special efforts to accommodate rates to current economic conditions, and regulatory authorities should permit such rates to be promptly effective.
For 2105 Against 123

9. The period within which reparation claims may be filed against railroads for excessive rates and over-charges, and by railroads against shippers for undercharges, should be substantially shortened.
For 1832½ Against 415½

10. Reparation should be awarded only to persons suffering actual damage.
For 1837½ Against 412½

11. The commission should have authority to delegate powers to individual commissioners, with right of appeal to the commission.
For 2159½ Against 109½

12. The commission should have authority to delegate powers in routine matters to boards of employees of the commission, with right of appeal to the commission.
For 2080½ Against 174½

New York Central Refused Forty Per Cent Increase

The New York State Public Service Commission, on December 21, requested the New York Central to withdraw its application for a 40 per cent increase in commutation fares to and from New York City, which application has been pending since November 28, 1930, with numerous hearings in the interim; but consented to the continuation of the present compromise arrangement under which an increase of 25 per cent is in effect and which has been in force since April 1, last.

Freight Traffic in October

Freight traffic moved by the Class I railroads in the first ten months of 1932 amounted to 216,113,804,000 net ton-miles, according to reports compiled by the Bureau of Railway Economics. This was a reduction of 76,287,874,000 net ton-miles, or 26.1 per cent, under the traffic for corresponding period in 1931 and of 40.1 per cent under the same period in 1930.

The Eastern district for the ten months reported a reduction of 24.5 per cent compared with the same period in 1931; the Southern a reduction of 27.7 per cent, and the Western 27.7 per cent.

The record for October was 26,344,399,000 net ton-miles, a reduction of 4,234,807,000 net ton-miles, or 13.8 per cent, under that of the same month in 1931, and 33 per cent under that of October, 1930. The Eastern district for October showed a reduction of 13.8 per cent compared with the same month in 1931, the Southern 12.4 per cent, and the Western 14.3 per cent.

Freight Rates Prescribed For Cottonseed

The Interstate Commerce Commission on December 13 made public its report on Part 8 of the rate structure investigation under the Hoch-Smith resolution. It prescribes mileage scales of maximum reasonable rates, based on percentages of first-class rates, together with rules and regulations, for the transportation of cottonseed and its products and related articles, covering all points of origin and destination in the United States. It includes both increases and reductions.

Leipzig World Fair

The Leipzig Trade Fair will be held on March 5 to 12, 1933, attracting exhibitors and buyers from all parts of the world, as it has for seven centuries. It is expected to be five times the size of any pre-war fair, comprising exhibits from 32 countries and buyers from twice as many lands. Early reports indicate that moderate prices will be the keynote of the Fair which will include over 8,000 exhibits. Detailed information concerning the Fair can be had by addressing the Leipzig Trade Fair, Inc., 10 East Fortieth street, New York.

Railway Employment Increased in October

An increase of 22,785 in the number of employees in the service of Class I railways between the middle of September and the middle of October is shown in the Interstate Commerce Commission's monthly statement of railway employment statistics. The total as of the middle of October was 1,033,225, as compared with 1,010,440 in September and 996,317 in August. The number in October, however, represented a decrease of 15.68 per cent as compared with the same month in 1931.

Hotel Accommodations Used to Promote Coach Travel

The Chicago & North Western and the Union Pacific in connection with low-rate coach fares to the Pacific coast are providing hotel accommodations as a means of encouraging coach travel. The combination, which amounts to a tour, enables the traveler to take advantage of the low coach rates which are in effect from Chicago to California without necessitating a continuous trip on the train. Since the low coach rate ticket has an eight-day limit, it is possible to arrange the tour so that the passenger rides on the train during the day and stops at first-class hotels each night. For example, after leaving Chicago, the passenger stops the first night at Omaha, Neb., the second at Cheyenne, Wyo., the third at Ogden, Utah, and the fourth at Las Vegas, Nev., and arrives in Los Angeles on the evening of the fifth day. San Francisco passengers stop at Reno, Nev., instead of Las Vegas. Returning, the same arrangement has been put in effect. The tour, which costs $62.50 for one way and $115 for the round trip, includes a rail fare, transfers, hotel room with bath and one night's stay in a San Francisco or Los Angeles hotel.

New York Railroad Club Annual Dinner

More than 1750 members and guests of the New York Railroad Club attended its annual dinner and sixtieth anniversary celebration at the Commodore Hotel, New York, on December 15. H. H. Vreeland, director of welfare, Interboro Rapid Transit Company, was master of ceremonies and the program included brief talks by the President of the Club—George LeBoutillier, vice-president of the Pennsylvania,—and Mayor-Elect John P. O'Brien of New York. Among the entertainment features were numbers by the New Haven Railroad Glee Club.

Parade Features Ship-By-Rail Meeting

A parade of more than 1,000 persons carrying red fusees and signs protesting against unfair transportation competition featured a mass meeting of the Ship-by-Rail Clubs of the State of Washington at Tacoma on December 11. The parade, headed by the American Legion drum corps, followed the arrival of a special train from Seattle carrying about 1,000 persons. The meeting was presided over by E. S. Meston, a Northern Pacific baggage and express agent, while the principal speakers were L. C. Gilman, vice-president of the Great Northern, and Lewis B. Schellenbach. The association has a membership of approximately 8,000 railroad employees.

Southwestern Roads Ask Increased Divisions

The southwestern railways have asked the Interstate Commerce Commission to prescribe the basis for dividing the joint through freight rates on all classes and commodities between them and the carriers in Official Classification territory, stating that a controversy has arisen between them and that the divisions demanded and retained by the eastern roads are unreasonably high while the payment of bridge tolls and river transfer charges by the southwestern roads on traffic moving in both directions results in divisions which are unreasonably low. The commission is asked to require the Official Classification lines to participate in the payment of Mississippi river bridge tolls and transfer charges on traffic moving in both directions via the St. Louis-East St. Louis gateway.

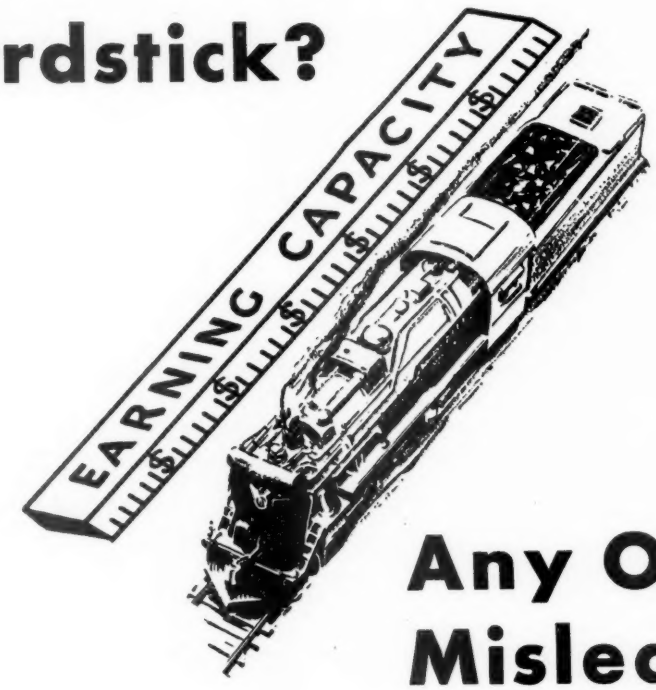
Foreign Railway Survey for Supply Manufacturers

The Foreign Railway Section of the United States Department of Commerce's Transportation Division has recently completed a survey of steam and electric railways and subsidiary transportation companies throughout the world. The data

Continued on next left-hand page

DO YOU

Measure Your Motive Power With This Yardstick?



Any Other is Misleading!

"The best locomotives installed within recent years are so much better than those previously in service that economies could be effected by retiring many of the latter."

RAILWAY AGE EDITORIAL

LIMA LOCOMOTIVE WORKS INCORPORATED

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gathered in the survey, which the announcement of its completion states, was conducted at the request of interested supply manufacturers, include addresses, mileage, gages, number and types of equipment (including buses and trucks), officers and purchasing methods of carriers in foreign countries.

Copies of the complete survey, containing approximately 550 pages, may be secured for $5 which will entitle the subscriber to loose-leaf periodic supplements. Copies of the data for any particular country or grouping of small countries are available at 50 cents each.

Western Roads to Sell Mileage Books

Beginning February 1, railroads affiliated with the Transcontinental and the Western Passenger associations will offer mileage books for the first time in more than 15 years, the price amounting to a 25 per cent reduction in fares. One book, good for 3,000 miles and containing $108 in coupons, will sell for $81. Books will be good on all lines in the territory west of Chicago; St. Louis, Mo., Memphis, Tenn., and New Orleans, La., as far as the Pacific Coast. Another book will be sold for use between the eastern points mentioned and Texas, eastern New Mexico, Utah, Wyoming and Montana. This book, which will contain $72 worth of coupons, will be sold for $54 and will be good for 2,000 miles of travel.

For some time, traveling men have called for the use of script books that were in use before the war. "In giving a 25 per cent reduction to purchasers of the new script book, the railroads are more than meeting the requests of traveling salesmen," H. W. Siddall, chairman of the association said. Last year, in the hearings before the Interstate Commerce Commission, traveling men advocated a 20 per cent reduction in the price of mileage books.

Employee-Citizen Groups Form National Council

At a meeting in Cincinnati, Ohio, on December 19 and 20, attended by approximately 50 delegates representing railway employees and taxpayers associations and similar organizations in twenty-one states, the National Advisory Council of the Railroad Employees and Taxpayers Associations was formed. The Council is made up of six members, chosen on a territorial basis, and is to serve the state associations as a point of contact for the correlation of their activities to secure equality of regulation and taxation as between the railroads and competing forms of transportation. The National Advisory Council will supersede the Temporary Executive Committee formed by the employees and citizens organizations at a meeting in Chicago on September 30.

Members elected to the Council by the delegates present from the several territories are: W. L. Hullinger, St. Paul, Minn.; E. L. Worley, St. Louis, Mo.; H. O. Hewitt, Portsmouth, Ohio; G. L. Phillips, Louisville, Ky.; W. R. Vaughan, Henderson, N. C.; and J. G. Lyne, New York. The Council chose Mr. Phillips as its chairman, Mr. Hewitt as its secretary-treasurer, and Mr. Lyne as publicity secretary.

N. I. T. League Asks That Commissioners Be Appointed According to Merit

The Executive committee of the National Industrial Traffic League on December 6, at a meeting in Chicago, adopted a resolution favoring the appointment of members of the Interstate Commerce Commission "according to merit." Copies of the resolution were forwarded to President Hoover, President-Elect Roosevelt, Hon. James E. Watson and Hon. Joseph T. Robinson, the majority and minority leaders of the Senate. The resolution reads as follows: "Resolved, That the Executive Committee of the National Industrial Traffic League, in accordance with the position it has long expressed that appointments to the Interstate Commerce Commission, Federal Power Commission and Supreme Court of the United States should be determined upon the merits of the individual, independent of affiliation with a political party, except in so far as may be required by existing law, earnestly requests that nominations by any President of the United States to fill positions on the Interstate Commerce Commission, the Federal Power Commission and the Supreme Court of the United States be considered by the Senate of the United States on their merits, independent of partisan political considerations."

Farm Bureau Resolves to Protect Railroads

The American Farm Bureau Federation, at its fourteenth annual convention at Chicago on December 6-8, passed a resolution urging equality of competition between operators of highway trucks and the railroads, greater freedom for the railroads and the extension of pick-up and delivery service. The resolution follows:

Agriculture needs and demands the greatest possible benefits both in rates and services from all forms of transportation for persons and products, whether for profit or pleasure. Transportation facilities such as motor vehicles supply, must not be allowed by state or national laws and regulations to be made non-competitive to whatever other methods of transportation our nation enjoys.

The motor vehicle is a necessity to agriculture and cannot be classed as a luxury. Accordingly, it must not be crowded off our highways by prohibitive limitations, regulations and charges. On the other hand, railroads, being a well-established method of transportation, should be allowed opportunity to meet competition in transporting persons and products.

The consolidation of railroads should not only be permitted but encouraged when done in the interest of the public welfare.

Much greater freedom from state and federal restrictions in offering round-trip, special and excursion passenger rates should be allowed.

Direct ownership and operation without the necessity of using subsidiary corporations of bus and truck lines as feeders to the main trunk line should be permitted by both state and federal laws and regulations.

The right of pick-up and delivery in less-than-carload lots should be granted the railroads if not done below the actual cost of such service.

Frisco Wants to Abandon 133 Miles

United States District Judge Faris of St. Louis has authorized the receivers for the St. Louis-San Francisco to apply to the Interstate Commerce Commission for permission to abandon service on 11 branch lines in Arkansas, Kansas, Missouri and Oklahoma totaling 133 miles. The receivers informed the court that a study of 1931 operations revealed deficits, that continued operation would increase the size of the deficits and that in their opinion the small amount of freight and passenger traffic over the lines could be handled by motor truck service which they could arrange.

The lines affected are the Evadale branch, 18.1 miles, from Deckerville, Ark., to Evadale Junction; the Sligo branch, 5.4 miles, from Goltra, Mo., to Sligo; the Winkler branch, 12.8 miles, from Bangert, Mo., to De Camp; part of the Tipperary branch, 8.9 miles, from Osprey Junction, Ark., to Tipperary; part of the Deering branch, 4 miles, from Yukon, Mo., to Deering Branch, and 4.5 miles from Wardell, Mo., to Frailey; and branch lines between Belton, Mo., and Harrisonville, via Raymore, 17.6 miles; the Stanley branch, 8.4 miles, from Olathe, Kan., to Stanley; the LePanto branch, 15.6 miles, from Tyronza Junction, Ark., to West Ridge; the Bono branch, 35.6 miles, from Bono, Ark., to Algoa; and the Jennings branch, 1.8 miles, from North Jennings, Okla., to Jennings.

I. C. C. Examiner Recommends Caution in Coal Rate Reductions

On the ground that low-grade commodities are becoming more important than ever before as a source of tonnage and revenue for rail carriers, Examiner C. H. Peck of the Interstate Commerce Commission has recommended to the commission a policy of caution in dealing with complaints asking reductions in freight rates on coal, in a proposed report made public on December 21 on a series of complaints filed by the Central Pennsylvania Coal Producers' Association and others. The examiner recommends findings by the commission that the interstate track delivery rates on bituminous coal from mining districts in Pennsylvania, Maryland, and northern West Virginia to certain destination groups in Trunk Line territory be found unreasonable but that the rates to most of the groups be held not unreasonable. He also recommends some reductions in rates to destinations in New England but no reduction in transshipment rates to the ports of New York, Philadelphia and Baltimore.

"Summarized briefly," the report says, "the evidence shows that the tonnage of bituminous coal moving under the assailed rates has been declining over a period of years. This has been due to competition from other fuels and to competition with coal moving by water through the ports

Continued on next left-hand page

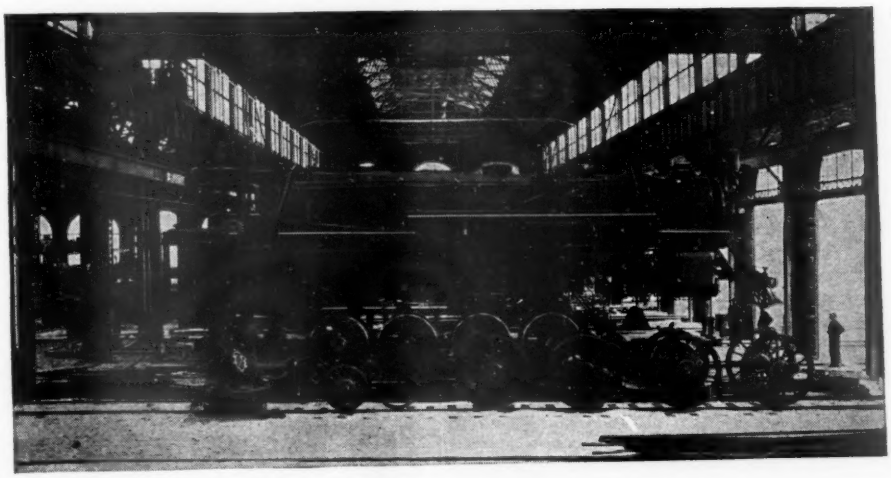
EVERY POUND
is a step towards the shop

Every engine that goes pounding over the rails is working up a repair job with each turn of the drivers. All because a little slack in the boxes quickly grows into a destructive pound for the locomotive and track.

Set up the wedges as carefully as you will, nevertheless a little room must be left for expansion as the box heats. Without restraint, that little space soon develops into a brass destroying clank.

Franklin Automatic Adjustable Wedges keep out this slack by adjusting wedges with every revolution of the drivers while the locomotive is running. Nothing else can do this.

Franklin Automatic Adjustable Driving Box Wedges keep brasses from pounding their way into the shop. Use them to lower maintenance and keep modern power in service.



FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK CHICAGO MONTREAL

at Hampton Roads to New England and other points along the coast. It is problematical whether an increased movement would result from a reduction in rates. Apparently the reduction in the rates to New England, required by the decision in the *Eastern Bituminous Coal Investigation*, had no effect on the trend from all-rail to tide-water coal. The record shows that the assailed track-delivery rates are much higher in relation to distance than rates to and within central and western trunk line territories. However, the transportation burden is distributed somewhat differently east and west of the Allegheny mountains, the coal rates in the east being higher than in central territory and in many of the states in the eastern and northeastern sections of western trunk line territory. The commission has recognized this difference in various cases. It is a result of difference in competitive influences which affect the rates in the east and those which affect the rates in and to central and western trunk line territories, as pointed out in connection with the discussion of the comparative rates. The assailed transshipment rates are also much higher in relation to distance than the lake cargo rates and the transshipment rates to the Hampton Roads ports, but the competitive influences surrounding the lake cargo rates are well known and the tractive efforts studies and other evidence indicate that transportation conditions on the Pocahontas lines are more favorable than on the northern tide-water routes.

"The present rate structure has stood

Operating Revenues and Operating Expenses of Class I Steam Railways in the United States

Compiled from the Monthly Reports of Revenues and Expenses for 168 steam railways, including 17 switching and terminal companies

FOR THE MONTH OF OCTOBER, 1932 AND 1931

Item	United States		Eastern District		Southern District		Western District	
	1932	1931	1932	1931	1932	1931	1932	1931
Average number of miles operated	242,115.10	242,255.56	60,130.33	60,215.41	46,029.62	46,147,38	135,955.15	135,892.77
Revenues:								
Freight	c $244,074,324	$289,185,519	$99,742,406	$119,854,118	$46,348,813	$52,791,418	$97,983,105	$116,539,983
Passenger	26,179,386	38,198,706	16,146,288	22,860,756	2,712,061	4,116,443	7,321,037	11,221,507
Mail	7,804,188	8,659,395	3,125,144	3,435,124	1,296,116	1,444,376	3,382,928	3,779,895
Express	4,872,827	6,966,527	2,097,569	3,576,136	689,368	887,024	2,085,890	2,503,367
All other transportation	e 9,579,349	11,983,408	5,502,760	6,940,820	714,055	876,483	3,362,534	4,166,105
Incidental	5,443,225	7,555,148	2,983,098	4,049,638	692,705	922,657	1,767,422	2,582,853
Joint facility—Cr.	743,259	926,307	245,792	315,920	122,350	152,204	375,117	458,183
Joint facility—Dr.	235,051	289,249	62,317	70,217	18,671	26,367	154,063	192,665
Railway operating revenues	298,461,507	363,185,761	129,780,740	160,962,295	52,556,797	61,164,238	116,123,970	141,059,228
Expenses:								
Maintenance of way and structures	29,266,929	42,003,914	10,979,279	17,746,496	6,257,367	8,682,334	12,030,283	15,575,084
Maintenance of equipment								
Traffic	50,886,269	63,739,625	23,165,716	29,449,671	9,208,456	11,993,956	18,512,097	22,295,998
Transportation	7,446,914	9,588,862	2,790,480	3,914,668	1,365,268	1,771,772	3,291,166	3,902,422
Miscellaneous operations	98,409,008	128,380,885	44,884,893	60,876,078	15,678,545	20,426,142	37,845,570	47,078,665
General	2,103,681	3,160,561	1,022,256	1,553,044	219,200	308,169	862,225	1,299,348
Transportation for investment—Cr.	12,432,985	14,925,999	5,307,873	6,547,408	2,126,326	2,556,661	4,998,786	5,821,930
Railway operating expenses	398,994	574,614	191,730	170,452	22,861	74,529	184,403	329,633
Net revenue from railway operations	200,146,792	261,225,232	87,958,767	119,916,913	34,832,301	45,664,505	77,355,724	95,643,814
Railway tax accruals	98,314,715	101,960,529	41,821,973	41,045,382	17,724,496	15,499,733	38,768,246	45,415,414
Uncollectible railway revenues	23,608,633	26,334,221	10,893,784	11,693,951	4,006,810	4,358,701	8,708,039	10,281,569
Railway operating income	72,236	66,734	26,462	22,305	17,518	11,525	28,256	32,904
Equipment rents—Dr. balance	74,633,846	75,559,574	30,901,727	29,329,126	13,700,168	11,129,507	30,031,951	35,100,941
	8,073,308	8,325,012	3,868,149	4,147,334	d 14,443	d 124,610	4,219,602	4,302,288
Joint facility rent—Dr. balance	2,721,222	3,032,318	1,490,671	1,502,576	332,047	291,822	898,504	1,237,920
Net railway operating income	63,839,316	64,202,244	25,542,907	23,679,216	13,382,564	10,962,295	24,913,845	29,560,733
Ratio of expenses to revenues (per cent)	67.06	71.93	67.77	74.50	66.28	74.66	66.61	67.80

FOR TEN MONTHS ENDED WITH OCTOBER, 1932 AND 1931

Average number of miles operated	242,178.92	242,325.55	60,169.19	60,260.34	46,152.15	46,134.97	135,857.58	135,930.24
Revenues:								
Freight	a $2,060,620,349	$2,803,558,117	$879,485,886	$1,180,224,271	$394,093,069	$530,538,793	$787,041,394	$1,092,795,053
Passenger	e 322,033,469	474,526,490	192,015,219	272,223,417	36,497,892	57,546,981	93,520,358	144,756,092
Mail	79,757,394	86,430,434	31,600,272	33,493,501	13,465,762	14,554,256	34,691,360	38,382,677
Express	46,052,600	71,326,768	20,699,884	31,815,998	7,633,962	11,345,426	17,718,754	28,165,344
All other transportation	b 92,985,024	121,925,390	54,565,872	70,616,054	6,525,750	9,103,112	31,893,402	42,206,224
Incidental	55,692,679	77,849,094	31,355,440	41,175,274	7,129,213	10,637,287	17,208,026	26,036,533
Joint facility—Cr.	7,583,684	9,599,906	2,542,780	3,092,823	1,392,069	1,714,209	3,648,835	4,792,874
Joint facility—Dr.	2,433,604	2,814,488	651,278	749,365	187,197	254,990	1,595,129	1,810,133
Railway operating revenues	2,662,291,595	3,642,401,711	1,211,614,075	1,631,891,973	466,550,520	635,185,074	984,127,000	1,375,324,664
Expenses:								
Maintenance of way and structures	507,322,652	470,254,468	123,050,731	198,748,374	59,520,028	89,494,463	124,751,893	182,011,631
Maintenance of equipment								
Traffic	522,827,581	704,762,423	236,976,446	327,024,549	94,959,150	127,791,459	190,891,985	249,946,415
Transportation	81,813,787	99,156,880	31,381,937	38,704,633	15,126,117	18,278,885	35,305,733	42,173,362
Miscellaneous operations	986,701,041	1,327,747,006	462,813,034	627,048,543	158,704,870	217,087,139	365,183,137	483,611,324
General	23,994,355	35,591,961	11,879,530	17,290,611	2,694,618	4,056,118	9,420,207	14,245,232
Transportation for investment—Cr.	132,512,206	154,307,071	57,921,056	67,276,322	22,522,264	26,846,194	52,068,886	60,184,555
Railway operating expenses	3,658,342	6,228,337	1,281,258	1,221,983	260,581	740,994	2,116,503	4,265,360
Net revenue from railway operations	2,051,513,280	2,785,591,472	922,741,476	1,274,871,049	353,266,466	482,813,264	775,505,338	1,027,907,159
Railway tax accruals	610,778,315	856,810,239	288,872,599	357,020,924	113,284,054	152,371,810	208,621,662	347,417,505
Uncollectible railway revenues	244,822,377	271,916,675	104,304,766	111,495,142	44,069,622	50,180,427	96,447,989	110,241,106
Railway operating income	780,077	663,934	309,929	236,694	127,350	141,758	342,798	285,482
Equipment rents—Dr. balance	365,175,861	584,229,630	184,257,904	245,289,088	69,087,082	102,049,625	111,830,875	236,890,917
	72,191,454	84,210,400	36,076,134	41,762,324	3,462,609	4,239,497	32,652,711	38,208,579
Joint facility rent—Dr. balance	26,688,965	26,479,836	14,547,262	14,510,673	2,989,127	2,775,389	9,152,576	9,193,774
Net railway operating income	266,295,442	473,539,394	133,634,508	189,016,091	62,635,346	95,034,739	70,025,588	189,488,564
Ratio of expenses to revenues (per cent)	77.06	76.48	76.16	78.12	75.72	76.01	78.80	74.74

a Includes $52,897,734 increase from "Ex Parte 103." b Includes $892,572 increase from "Ex Parte 103." c Includes $6,071,596 increase from "Ex Parte 103." d Deficit or other reverse items. e Includes $94,304 increase from "Ex Parte 103."

Compiled by Bureau of Statistics, Interstate Commerce Commission. Subject to Revision.

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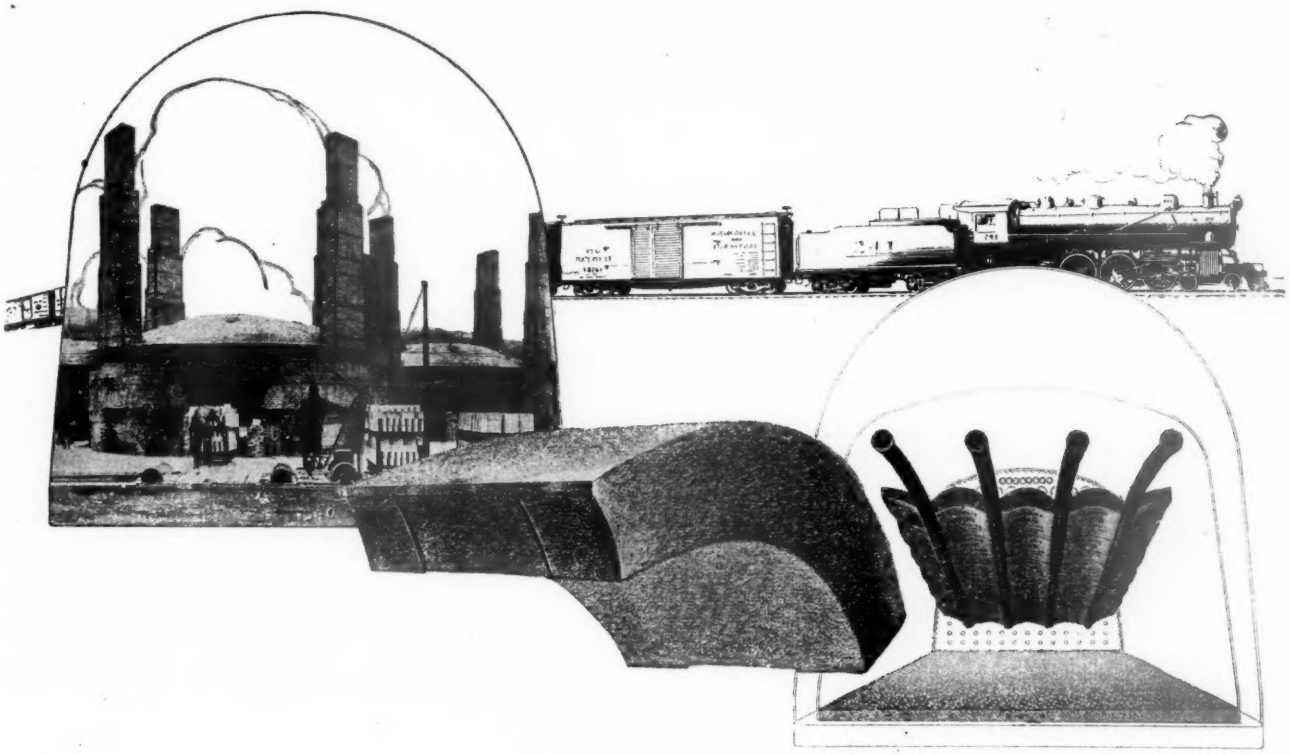

ARCHES Are Now Worked Harder

WHEN speeds climbed higher and higher; when train loads became greater the work of the firebox increased and so did that of the locomotive Arch.

In two weeks, the locomotive Arch today does as much work as it formerly did in a month.

These changed methods of operation are fine for railroad economy but they are tough on the locomotive Arch.

Everything considered, Arch Brick render better service today than they ever did—a tribute to the constant efforts of the American Arch Company in developing the locomotive Arch.

THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK

HARBISON-WALKER REFRACTORIES CO.
Refractory Specialists

AMERICAN ARCH CO.
INCORPORATED
Locomotive Combustion Specialists

for many years without substantial attack. Compared with rates prescribed from the Cumberland-Piedmont-Meyersdale district to Washington and Baltimore and to Hagerstown and Union Bridge, also the rates prescribed from the Clearfield district to points in the Syracuse group, the assailed track delivery rates to trunk line territory in general do not appear unreasonable. The defendants as a whole have not earned a fair return on their property investment during the past decade. During the depression their traffic and earnings have declined to a low level. Bituminous coal furnishes a considerable portion of defendants' total tonnage and revenue, consequently any downward readjustment of bituminous rates unquestionably would have a decided adverse affect upon their earnings because of the volume of the tonnage involved. The ratio of the bituminous tonnage and the revenue therefrom to the total has increased slightly during the present depression. This fact, together with the evidence regarding motor truck competition, indicates that low grade commodities are becoming more important than ever before as a source of tonnage and revenue for rail carriers, and must bear a larger share of the rail transportation burden."

Commission To Hold Hearings on Freight Surcharge

Upon consideration of the petition filed by the Association of Railway Executives on December 10 for an extension beyond March 31 of the freight rate surcharge authorized last year in Ex Parte No. 103, the Interstate Commerce Commission on December 17 ordered a re-opening of the case for further hearing on the following points: Shall the surcharges be permitted to be continued by filing on short notice tariffs similar in character to those by which they were originally made effective? If such surcharges are continued, during what period shall they be permitted to remain in effect? Shall permission to continue such surcharges, if granted, be without condition as to disposition of the revenue accruing therefrom?

The railroads asked that they be continued without condition, stating that if they were pooled to be loaned to roads failing to earn their interest charges most of the roads which would contribute would have to apply in turn for loans. The proceeding has been assigned for hearing at Washington on December 28 and consideration will be given to any demand for other hearings, but in any event they will be limited in number and length. The commission's notice says it should be clearly understood that the proceeding, as re-opened, relates only to a continuation of the surcharges now in effect and that evidence will not be received in support of any contention that the present surcharges should be increased or that they should be extended to include other commodities.

Safety Program for January

The Committee on Education of the Safety Section, A. R. A., of which L. G. Bentley is chairman, addresses its January circular not only to railroad officers and employees, but to "all persons interested in steam railroad transportation." The circular is devoted to train operation (exclusive of other accidents) and sets forth the record of the great improvement in this feature since the beginning of the present campaign, in 1923, as shown by the diminution in the number of collisions and derailments and the much smaller numbers of persons killed and injured. Two diagrams are given showing the gradual reduction in the number of train accidents and in the damage to property.

For example, passengers killed in 1931, four; in 1923, forty-two. Employees killed, 92 and 275; all persons killed, 229 and 412. In percentages, the eight-year record shows a decrease of 90 per cent in passengers killed; 66 per cent in employees killed and 30 per cent in trespassers killed. There was an increase under the head of "others not trespassing" but this is due entirely to automobile disasters at crossings, a class of accident caused by the acts of the citizens involved and not preventable by the railroad.

These facts are set forth in recognition of the highly efficient management of the officers and the fine cooperation of the army of employees. The committee, in closing, congratulates both officers and employees on their efforts in installing and maintaining better track and better equipment and on the influences thrown around the army of workers, creating an attitude of "safety mindedness."

Jersey Central to Substitute Buses for Trains

The Board of Public Utilities Commissioners of New Jersey has authorized the Central of New Jersey to discontinue certain trains between Matawan, N. J., and East Long Branch and to substitute therefor bus services operated, under contract with the Jersey Central, by the Boro Buses-Rollo Transit Corporation. Testimony presented in the support of the application indicated that the train services to be abandoned were operating at a monthly loss of more than $3,000 while the proposed contract covering the substitute bus service would involve a maximum monthly payment by the Jersey Central of $1,597.

In permitting the substitution the Board said that it "cannot be unmindful of the prevailing economic conditions in which railroad companies now find themselves, not only in the area involved here, but generally throughout the country. It is apparent that railroad companies must effect every economy available within the limits of reasonable service and reduce to a minimum operations which are conducted at a loss. This fact is recognized by all regulatory bodies, including the Interstate Commerce Commission, and it is now the policy of this Board, particularly in grade crossing elimination cases, to suspend such activities wherever possible under the prevailing conditions of economic distress. Clearly, this Board could not adopt a principle that wasteful service must be maintained solely to aid in the maintenance of real estate values, an argument that is presented by the objectors. The pertinent question is rather that of adequacy of service, whether the substitution affords reasonable service under the conditions and whether the savings of losses involved is necessary and not inconsistent with the service proposed to be rendered."

Club Meeting

The Railway Car Man's Club of Peoria & Pekin will hold its next meeting at the Union Station, Peoria, Ill., on Friday evening, January 20. The discussion will be on the revised interchange rules.

Extension of Federal Barge Service

Senator McNary, of Oregon, has introduced in the Senate a bill, S. 5093, authorizing the Secretary of War to extend the services and operations of the Inland Waterways Corporation to the Columbia river and its tributaries; and Representative French, of Idaho, has introduced a bill, H. R. 13,488, providing for the establishment of joint through routes and rates between rail and water carriers on the Columbia and Snake rivers.

Southern's Thanksgiving Bargain Fares Attract Passengers

Approximately 19,500 passenger tickets, bringing "substantial revenue returns," were sold by the Southern at its Thanksgiving holiday train travel bargain rates, according to a recent announcement. Similar reduced rates are being offered for the Christmas and New Year holidays, as outlined in the *Railway Age* of December 17, and it is anticipated that Christmas travel on the Southern this year will reach the same proportions as last year.

D. L. & W. Ascertains Smoking Preferences of Suburban Passengers

Cognizant of the fact that smoking habits have undergone a decided change in recent years, due to the greater number of women addicted to the habit and to the increasing use of cigarettes by men, the Delaware, Lackawanna & Western is making an effort to ascertain the smoking preferences of its suburban passengers, with the object of learning whether the standard practice of operating one or two smoking cars in all suburban trains is satisfactory to commuters. For this purpose, a ballot reading as follows was distributed to all passengers on all such trains on Tuesday, December 20:

"The management is desirous of obtaining the opinion of its suburban passengers on the three propositions submitted herewith. Kindly indicate your preference by marking X before one of the following:

"I prefer the present practice of providing one or two cars for smokers.

"I prefer to have one car for non-smokers and permit smoking in the balance of the train.

"I prefer to have smoking permitted in all cars throughout the train."

Ballots were collected by the train conductors; they will be counted and the results of the vote announced after the close of the Christmas holiday season.

ARMCO MULTI-PLATE.—The Armco Culvert Manufacturers Association, Middletown, Ohio, has issued a 32-page booklet containing complete information concerning this company's Multi-Plate pipe and Multi-Plate arches, including the advantages of use, the various uses to which these plates are adapted in providing drainage structures and directions for erection.

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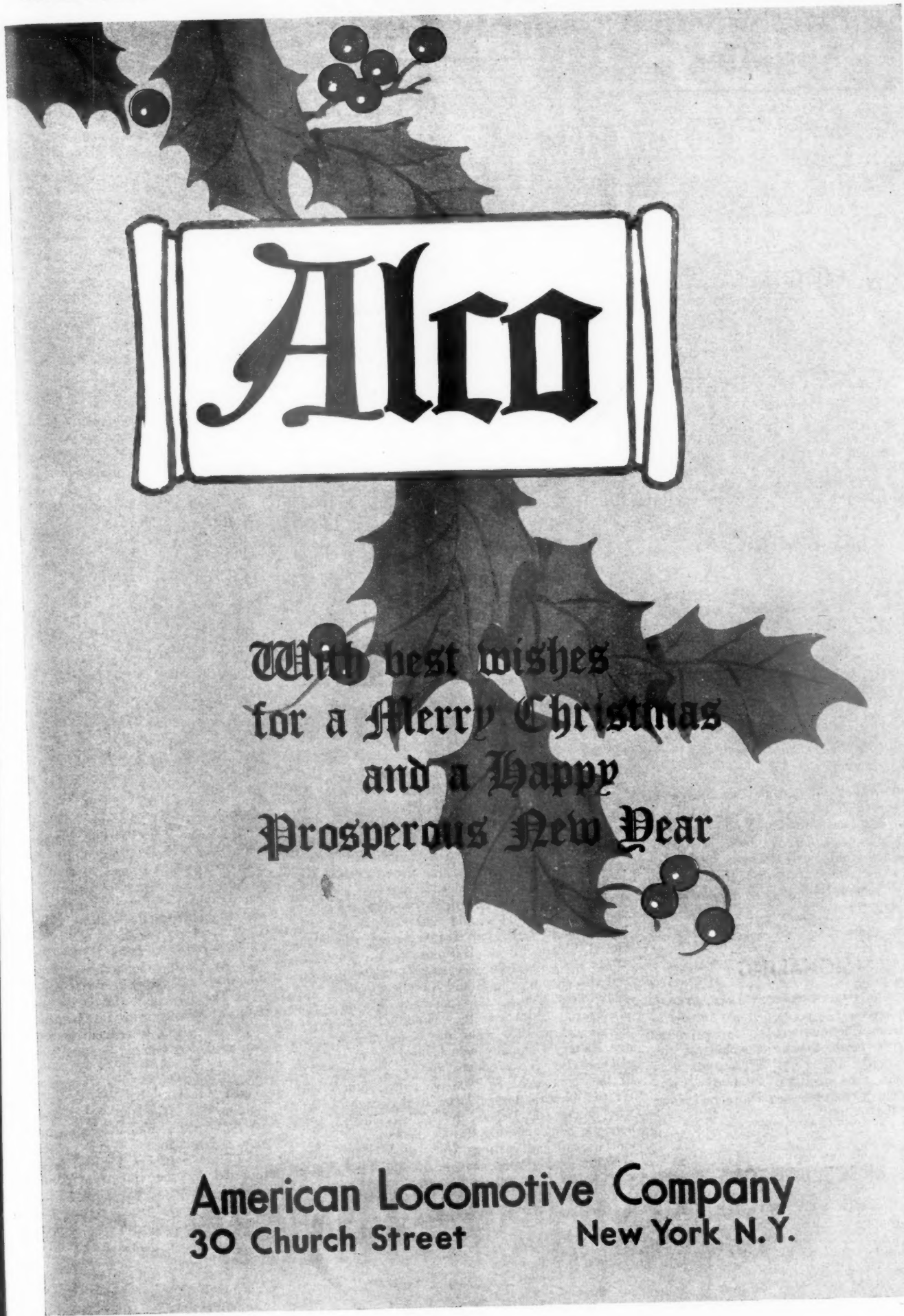
Alco
With best wishes
for a Merry Christmas
and a Happy
Prosperous New Year
American Locomotive Company
30 Church Street New York N.Y.

Equipment and Supplies

LOCOMOTIVES

SUCESSION J. SERRALES, Porto Rico, recently ordered one locomotive of the 2-4-2 type from the Davenport Locomotive & Manufacturing Company for delivery in December.

FREIGHT CARS

THE UNITED FRUIT COMPANY is inquiring for 60 fruit cars of 15 tons' capacity for service on the Santa Marta Railway, Colombia.

CANADIAN NATIONAL—A contract has been given to the Eastern Car Company, New Glasgow, Nova Scotia, to build 500 gondola cars of 70 tons' capacity for the Canadian National. In the *Railway Age* of December 17, it was reported that plans were being made to build these cars.

PASSENGER CARS

THE CONSOLIDATED RAILWAYS OF CUBA have ordered one No. 55 Brill gasoline rail motor car, from the American Car & Foundry Export Company.

IRON AND STEEL

THE ILLINOIS CENTRAL has ordered 2,500 tons of rails, dividing the order between the Illinois Steel Company and the Inland Steel Company.

THE ATCHISON, TOPEKA & SANTA FE has ordered 27,349 tons of rails, the distribution being as follows: 22,605 tons from the Colorado Fuel & Iron Company, 1,908 tons from the Bethlehem Steel Company, 1,418 tons from the Illinois Steel Company, and 1,418 tons from the Inland Steel Company.

SIGNALING

CHICAGO, INDIANAPOLIS & LOUISVILLE.—This company has petitioned the Interstate Commerce Commission for an order relieving it from the requirement of the commission's orders of 1922 and 1924 requiring it to maintain automatic train-control on its line between Hammond, Ind., and Indianapolis.

MISCELLANEOUS

THE NORFOLK & WESTERN has received bids for approximately 2,500 tons of steel shapes, plates and bars for its first quarter requirements in 1933, and for its requirements of locomotive steel tires during the same quarter.

Supply Trade

T. J. Crowley has resigned as president and director of the **Transportation Equipment Corporation,** 230 Park avenue, New York.

Eugene Harbeck, development engineer of the **Armco Railroad Sales Company,** with headquarters at Rochester, N. Y., has been appointed Chicago representative, with headquarters at 1122 Straus building, Chicago, to succeed **James F. Cohig,** resigned.

The United States Steel Corporation will consolidate its warehousing or steel jobbing business, now conducted by the Illinois Scully Steel Warehouse Company, by transferring to it similar operations now conducted by Carnegie Steel Company. The name of the Illinois Scully Steel Warehouse Company will probably be changed to indicate more clearly its relation to the United States Steel Corporation. The change will be effected not later than January 31, 1933. Charles Heggie, now president of Illinois Scully Steel Warehouse Company, will continue as president of the enlarged company.

OBITUARY

Arthur B. Johnson, who until May, 1931, was associated with the Standard Steel Car Corporation in its sales department, Pittsburgh district, died on December 18, at Miami, Florida, at the age of 59.

Frederick P. Huntley, who resigned as vice-president and general manager of the Gould Coupler Company and vice-president of the Gould Storage Battery Company in August, 1917, died at his home in New York City, on December 11. Mr. Huntley began his business career in 1888 as a stenographer to the superintendent of motive power of the New York, Lake Erie & Western, now a part of the Erie. Shortly afterwards he became associated with the Gould interests as a bookkeeper and stenographer in the Gould Steam Forge, Buffalo, N. Y. In 1892 Mr. Huntley was made secretary and director of the Gould Coupler Company, New York, this company having previously absorbed the Gould Steam Forge and in 1900 when the Gould Storage Battery Company was formed, he was elected also vice-president and a director of that company. In 1903 when the plant for the manufacture of large steel castings was erected at Depew, N. Y., in which bolsters, couplers, side frames, and miscellaneous railroad castings were made, Mr. Huntley had direct charge of both the erection of this plant and its operation afterwards. Mr. Huntley resigned as secretary of the Gould Coupler Company in 1905 and was elected vice-president, general manager and a director, which position he relinquished in 1917, also the vice-presidency of the Gould Storage Battery Company.

Construction

BURLINGTON, MUSCATINE & NORTHWESTERN.—This company has applied to the Interstate Commerce Commission for a certificate authorizing a relocation and rehabilitation of its line between Muscatine, Iowa, and Burlington, by the construction of 18.44 miles between Fruitland and Oakville on a new location and rehabilitation of 23.8 miles. The application indicated that it expected to finance the work by a loan from the Reconstruction Finance Corporation.

CHICAGO & NORTH WESTERN.—A contract has been awarded to Peppard & Burrill, Minneapolis, Minn., for the construction of a water-softening plant having a capacity of 2,400,000 gal. a day at Clinton, Iowa, at a cost of about $30,000.

MISSOURI PACIFIC.—This road has awarded to the Roberts and Schaefer Company, Chicago, a contract for the entire coal- and sand-handling equipment for a 300-ton, fireproof, two-track locomotive coaling plant for installation at Myrick, Mo.

NEW YORK CENTRAL.—The New York Public Service Commission has ordered the reconstruction of the bridge carrying the Syracuse-Warners-Memphis and Camillus-Warners-Baldwinsville highways over this company's tracks in Van Buren, N. Y.

NEW YORK, NEW HAVEN & HARTFORD.—This road has awarded to the Austin Company, New York City, a contract for the construction of a one-story reinforced concrete and brick warehouse at Harlem River, N. Y. The completed structure, which will cost about $60,000, will be used by the Great Atlantic & Pacific Tea Company as a fish warehouse.

PUBLIC SERVICE COMMISSION OF NEW YORK.—The New York Public Service Commission has closed proceedings for elimination of grade crossings located on the New York Central at Old Greenbush road, near Tappan station, Orangetown, N. Y., and near Bloomville station, Kortright, N. Y., and on the Erie at Coffey street and Dug road, Ashland, N. Y. The commission has also amended its order for elimination of the Crandall street crossings of the Erie and the Delaware, Lackawanna & Western in Binghamton, N. Y., to provide for a pedestrian instead of a vehicular underpass.

TEXAS & NEW ORLEANS.—In connection with the construction of the New Orleans Public Belt bridge over the Mississippi river at New Orleans, La., this company and Morgan's Louisiana & Texas (both subsidiaries of the Southern Pacific) have been authorized by the Interstate Commerce Commission (1) to operate over the new bridge, when completed, from West Bridge Junction across the Mississippi river to East Bridge Junction and thence through the city of New Orleans to a connection with the tracks of the New Orleans Terminal Company near Florida avenue, 16.16 miles; (2) to construct nec-

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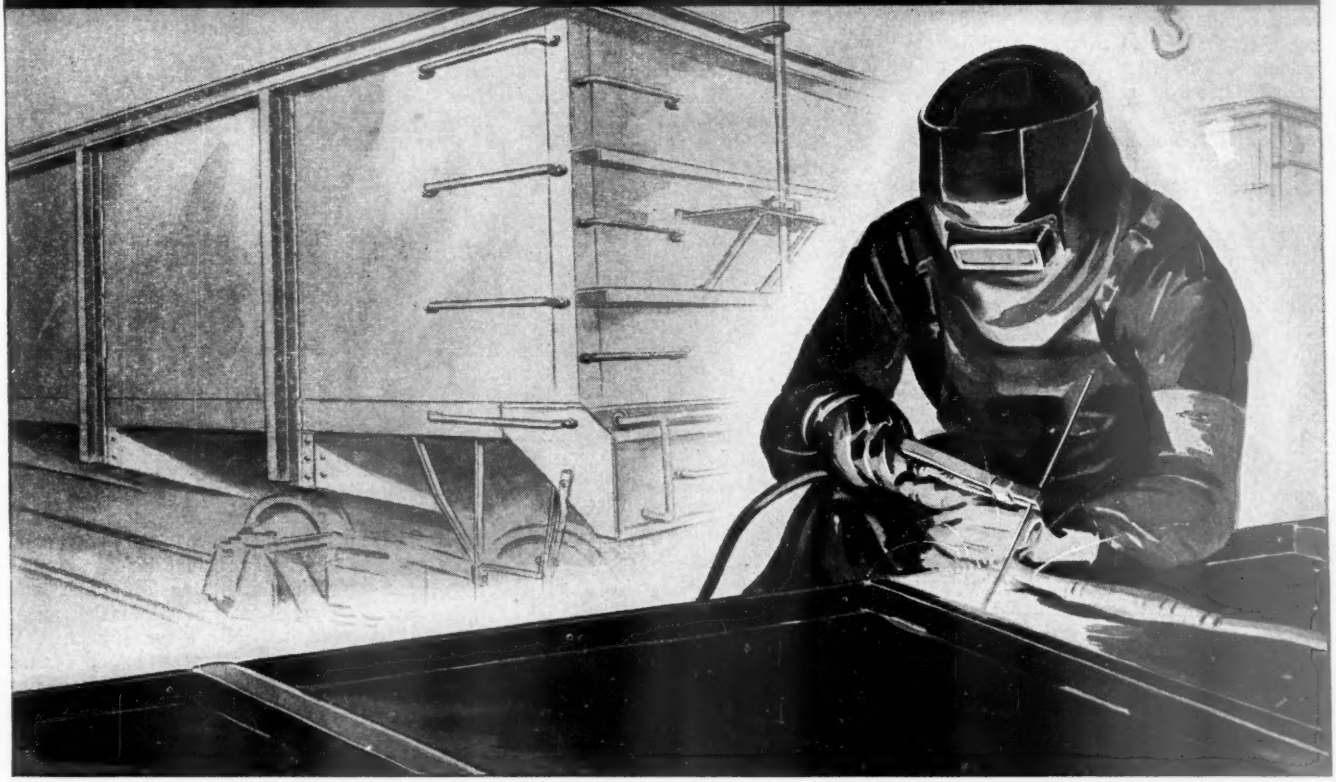
TONCAN IRON

GIVES GREATER PERMANENCE TO CAR REPAIRS



Facing the railroads is an accumulation of much needed repairs. Rust and corrosion have taken a heavy toll of rolling stock. Cars must be re-built before they are again fit for service. » Are you going to send these cars back on the road again, prepared no better than before to resist the onslaughts of rust and corrosion? Or are you going to give them the protection of modern rust-resisting Toncan Iron? » Upon this decision rests the speed with which you will find equipment returning for further work. The quick rusting through of car plates in exposed locations need no longer be tolerated. » Toncan Iron car plates resist corrosion better than ordinary car plates due to their special alloy composition of refined iron, copper and molybdenum. » Many miles of freight cars built of Toncan Iron plates are enjoying lower maintenance due to the superior rust resistance of this modern iron. » For the sake of future maintenance expense, make your repairs with Toncan Iron.

Toncan Iron Boiler Tubes, Pipe, Plates, Culverts, Rivets, Staybolts, Tender Plates and Firebox Sheets • Sheets and Strip for special railroad purposes • Agathon Alloy Steels for Locomotive Parts • Agathon Engine Bolt Steel • Agathon Iron for pins and bushings • Agathon Staybolt Iron • Climax Steel Staybolts • Upson Bolts and Nuts • Track Material, Maney Guard Rail Assemblies • Enduro Stainless Steel for dining car equipment, for refrigeration cars and for firebox sheets • Agathon Nickel Forging Steel.

The Birdsboro Steel Foundry & Machine Company of Birdsboro, Penna., has manufactured and is prepared to supply under license, Toncan Copper Molybdenum Iron castings for locomotives.

REPUBLIC STEEL
CORPORATION
GENERAL OFFICES YOUNGSTOWN, OHIO

TONCAN
COPPER MOLYBDENUM
IRON

essary yard tracks at West Bridge Junction and near East Bridge Junction; (3) to abandon (a) a car ferry across the Mississippi river between Avondale and Harahan, 1 mile, (b) a track extending from the main line near Avondale to the south end of said ferry, 3,000 ft., (c) operation under trackage rights over the Illinois Central and the Yazoo & Mississippi Valley from the north end of said ferry to East Bridge Junction, 5.3 miles, (d) operation over an existing line on the west side of the Mississippi from West Bridge Junction to the end of the line near the United States Naval Reservation, 10.6 miles, (e) the second main track and yard tracks along said line within the present limits of the city of New Orleans, except such tracks as may be necessary for switching service, and (f) a car ferry across the Mississippi river at the east end of said line, 3,000 ft. These changes constitute, in effect, a relocation of line, under which the Southern Pacific will abandon the two car ferries which it now operates across the Mississippi river near New Orleans and will move all of its traffic into the city over the bridge, operating freight trains over the New Orleans Public Belt along the east side of the river through the city, and passenger trains over the Illinois Central from the east end of the bridge into the New Orleans passenger terminal.

Financial

CARLTON & COAST.—*Bonds.*—The Interstate Commerce Commission has authorized this company to procure the authentication and delivery of $549,000 of 6 per cent bonds to be used in connection with the construction of an extension, procurement of equipment and the payment of maturing obligations.

CAROLINA, CLINCHFIELD & OHIO.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $200,000 of first mortgage 5 per cent bonds to be delivered to the Atlantic Coast Line and the Louisville & Nashville, in equal shares, to provide for the retirement of a like amount of outstanding bonds. The last named companies have been authorized to assume liability as lessees for these bonds, which are to be sold at the best price obtainable and the proceeds used in reimbursement for expenditures to be made in retiring at maturity $200,000 of Lick Creek & Lake Erie bonds.

FRANKLIN & PITTSYLVANIA.—*Abandonment.*—The Interstate Commerce Commission has authorized the receivers of this company to abandon as to interstate and foreign commerce its entire line extending from Rocky Mount, Va., to Angles, 21 miles.

GULF, MOBILE & NORTHERN.—*Control.*—The Interstate Commerce Commission has authorized the Gulf, Mobile & Northern of Louisiana to issue $200,000 of common stock, all but directors qualifying shares to be delivered to the Gulf, Mobile & Northern in part payment for capital expenditures. The Gulf, Mobile & Northern is authorized to control the Gulf, Mobile & Northern of Louisiana by purchase of capital stock.

ILLINOIS CENTRAL.—*Abandonment.*—The Interstate Commerce Commission has authorized the Minter City Southern & Western and the Yazoo & Mississippi Valley to abandon a line extending from Minter City, Miss., to Avants Spur, 3.8 miles.

NORTHWESTERN PACIFIC.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a part of its main line between Korblex, Calif., and Trinidad, 16.9 miles; its Little River branch extending from Little River Junction to the terminus of the branch, 1.3 miles; and its Sherwood branch extending from Willits to Williams, 13.9 miles.

PERE MARQUETTE.—*Bonds.*—The Interstate Commerce Commission has authorized this company to pledge with the Railroad Credit Corporation its equity in $9,000,000 of first mortgage bonds now pledged with the Reconstruction Finance Corporation as collateral security for a loan.

PITTSBURG, SHAWMUT & NORTHERN.—*Abandonment.*—The Interstate Commerce Commission has authorized this company and its receiver to abandon a portion of a branch line between Marvindale, Pa., and Hazelhurst, 2.5 miles.

RALEIGH & CHARLESTON.—*Abandonment.*—Examiner R. R. Molster of the Interstate Commerce Commission has recommended in a proposed report that the commission authorize the abandonment of this company's line from Lumberton, N. C., to Lakeview, S. C., 22.67 miles.

SOUTHERN PACIFIC.—*Abandonment.*—The Interstate Commerce Commission has authorized the San Antonio & Aransas Pass and the Texas & New Orleans to abandon a branch extending from Shiner Junction, Tex., to Gonzales, 21 miles, 1.5 miles of the abandoned line to be retained as a part of the Texas & New Orleans yard at Gonzales.

TEXAS & NEW ORLEANS.—*Operation, Construction and Abandonment.* — See Texas & New Orleans item in Construction columns.

WESTERN PACIFIC.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $4,000,000 of general and refunding mortgage, series B, bonds and to pledge its equity in them (subject to their pledge to the Reconstruction Finance Corporation) to the Railroad Credit Corporation for a note amounting to $1,303,000.

Dividends Declared

Canada Southern.—$1.50, semi-annually, payable February 1 to holders of record December 27.

Chicago, Burlington & Quincy.—Dividend omitted.

Joliet & Chicago.—1¼ per cent, quarterly, payable January 3 to holders of record December 20.

Mahoning Coal R. R.—Common, $6.25, quarterly, payable February 1 to holders of record January 16; Preferred, $1.25, semi-annually, payable January 3 to holders of record December 23.

New London & Northern.—$2.25, quarterly; Extra, $1.00, both payable January 2 to holders of record December 15.

Northern Central.—$2.00, semi-annually, payable January 14 to holders of record December 31.

Norwich & Worcester.—Preferred, $2.00, quarterly, payable January 2 to holders of record December 14.

Pittsburgh & Lake Erie.—$1.25, semi-annually, payable February 1 to holders of record December 27.

Providence & Worcester.—$2.50, quarterly, payable January 3 to holders of record December 14.

Sussex R. R.—50c, semi-annually, payable January 3 to holders of record December 24.

Average Prices of Stocks and of Bonds

	Dec. 20	Last week	Last year
Average price of 20 representative railway stocks..	23.82	24.63	32.82
Average price of 20 representative railway bonds..	56.56	57.19	66.61

Railway Officers

EXECUTIVE

W. S. Trowbridge has been appointed vice-president in charge of finance and accounting of the Maine Central, and **A. W. Munster** has been appointed vice-president in charge of purchases and supplies. Mr. Trowbridge holds a similar position with the Boston & Maine, and Mr. Munster, at present purchasing agent of that road, will also assume the title of vice-president of the Boston & Maine, upon approval of these changes by the Interstate Commerce Commission.

Philip J. Watson, Jr., general superintendent of the Kansas City Terminal, Kansas City, Mo., who has been elected president and general manager, as noted in the *Railway Age* of December 17, has

Philip J. Watson, Jr.

been connected with various railways, principally in engineering capacities, for 25 years. He was born on May 24, 1886, at Dunkirk, N. Y., and after attending Princeton University for two years, he entered railway service on February 1, 1903, as a rodman on the Erie and Ashtabula division of the Pennsylvania, serv-

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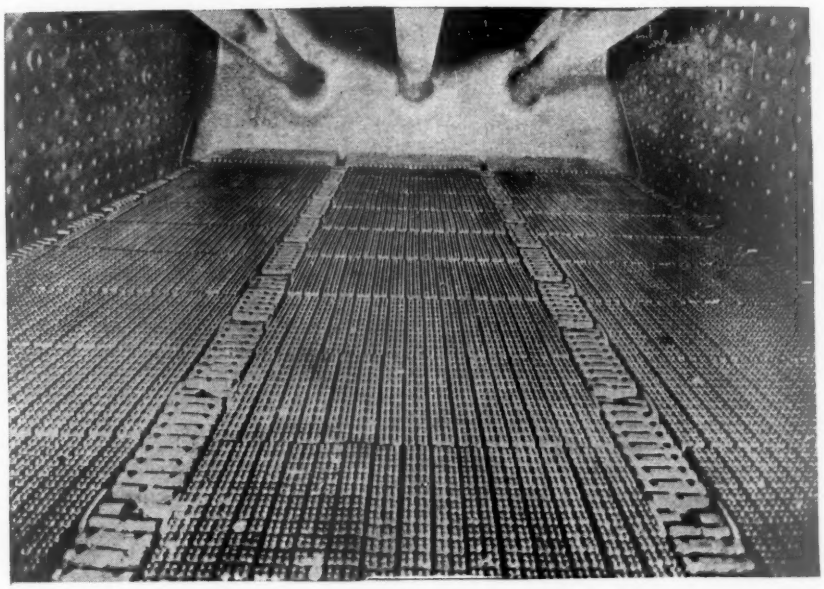
FIREBARS . . . PROVIDE A MORE EFFICIENT PLATFORM ON WHICH TO BURN COAL . .



AND ARE THE MOST FORWARD STEP SINCE THE ADVENT OF THE LOCOMOTIVE

Over 300,000,000 locomotive miles operation in passenger, freight and switching service have established Firebar superiority over round hole, slotted and finger grates.

WAUGH FIREBAR BETTER FIRES

Less fuel consumption
Less maintenance
Less smoke
Less plugging of flues
Less time required to dump fires
Less steam failures
Less parts to carry in stock

FIREBAR DIVISION OF

WAUGH EQUIPMENT COMPANY

NEW YORK CHICAGO CLEVELAND ST. LOUIS

Research Laboratory and General Office—DEPEW, N. Y.

CANADIAN WAUGH EQUIPMENT CO., LTD. MONTREAL, QUE.

ing this road consecutively as a draftsman, instrumentman and inspector until 1906, when he left railway service to resume his education. In 1908, Mr. Watson became an assistant engineer on the Missouri Pacific and after a year with this railroad he entered the service of the Wheeling & Lake Erie as an instrumentman, subsequently being appointed assistant engineer. Three years later he went with the Chicago & Alton as an assistant engineer, and during the war he served overseas with the United States Army. In 1919, Mr. Watson returned to the Chicago & Alton as a resident engineer and in 1920 he left this company to go with the C. R. Cummins Company as superintendent of construction. In August, 1921, he left the latter concern to take up service with the Kansas City Terminal as superintendent, which position he held until 1930, when he was advanced to general superintendent, the position he was holding at the time of his recent election as vice-president and general manager.

FINANCIAL, LEGAL AND ACCOUNTING

C. B. Gordon, auditor of disbursements of the Canadian Pacific, has been appointed auditor of passenger receipts at Montreal, Que., succeeding **E. J. Bulgin,** who will retire under the pension rules of the company. **J. W. Fontaine,** auditor of stores and mechanical accounts at the Angus shops, has been appointed auditor of disbursements.

OPERATING

Following the abolition of the Pasco division of the Northern Pacific and its absorption by the Tacoma and Idaho divisions, **D. S. Colby,** superintendent of the Pasco division, has been appointed to the newly-created position of assistant superintendent of the Idaho division, with headquarters as before at Pasco, Wash. **H. J. McCall,** trainmaster on the Pasco division, with headquarters at Pasco, has been appointed trainmaster-roadmaster on the Fargo division, with headquarters at Mandan, N. D., where he succeeds **C. W. Coil,** who has been appointed division roadmaster of the Idaho division, with headquarters at Spokane, Wash.

TRAFFIC

P. E. Watson, who has been appointed general freight and passenger agent on the Missouri Pacific, with headquarters at Kansas City, Mo., has been in railway service with various companies for 27 years. He was born on November 1, 1888, at Comer, Ala., and after a public school education he entered railway service in September, 1905, in the office of the paymaster of the Louisville & Nashville, going with the Alabama Great Southern in the office of the freight traffic manager in June, 1906. In November of the same year, Mr. Watson went with the Southern, where he held various clerical positions in the office of the general superintendent at Birmingham until the summer of 1907, when he entered the service of the St. Louis-San Francisco at Birmingham. From December, 1907, to May, 1908, Mr. Watson served as export clerk for the Louisiana Railway & Navigation Company at New Orleans, La., at the end of which period he became soliciting freight agent for the Missouri Pacific at Birmingham. In September, 1909, he was transferred to Ft. Smith, Ark., and two years later he

P. E. Watson

was advanced to general freight agent, with the same headquarters. From July 1, 1917, to January 1, 1932, Mr. Watson served at Pueblo, Colo., successively as general agent, division freight and passenger agent and assistant general freight and passenger agent, and on the latter date he was appointed general live stock agent, with headquarters at Kansas City, which position he continued to hold until his recent appointment as general freight and passenger agent at Kansas City, effective November 16.

ENGINEERING AND SIGNALING

J. V. McNab, division engineer on the Canadian Pacific, with headquarters at Saskatoon, Sask., has been promoted to district engineer of the Saskatchewan district, with headquarters at Moose Jaw, Sask., to succeed **J. R. C. Macredie.**

O. N. Lackey, assistant division engineer of the Allegheny, Bradford and Meadville divisions of the Erie and of the Buffalo & Southwestern (a part of the Erie), with headquarters at Salamanca, N. Y., has been appointed acting division engineer, with jurisdiction over the same territory and with the same headquarters, to succeed **C. M. Lewis,** who has been granted a year's leave of absence because of ill-health.

MECHANICAL

W. E. Dunkerley, master mechanic of the Pasco division of the Northern Pacific, with headquarters at Pasco, Wash., has been transferred to the Tacoma division, with headquarters at Seattle, Wash., where he replaces **J. A. Marshall,** who has been appointed assistant master mechanic, with the same headquarters. These changes are coincident with the abolition of the Pasco division and its absorption by the Tacoma and Idaho divisions.

SPECIAL

Dr. Leon E. Sample has been appointed chief surgeon of the Central Vermont, succeeding the late **Dr. Allan Davidson.** Dr. Sample will have headquarters at St. Albans, Vt.

OBITUARY

J. B. Yohe, Former President of P. & L. E., Dies

James B. Yohe, formerly vice-president of the Pittsburgh & Lake Erie, died on December 18, at his home in Pittsburgh, Pa. Mr. Yohe was born on June 24, 1856, in Washington County, Pa., and entered railroad service in June, 1870, as telegraph operator on the Pittsburgh division of the Baltimore & Ohio. He served with that road successively as telegraph operator, chief clerk to the trainmaster and train dispatcher. From August, 1882, to October, 1883, he was chief train dispatcher of the Pittsburgh & Western (now a part of the Baltimore & Ohio), and on the latter

James B. Yohe

date he was appointed trainmaster of the Youghiogheny division of the Pittsburgh & Lake Erie. He was appointed chief train dispatcher and superintendent of telegraph in August, 1888, and two years later he became master of transportation and superintendent of telegraph of the same road. From April, 1895, to January, 1898, he was superintendent of telegraph and superintendent, being promoted to the position of general superintendent on the latter date. He became general manager of the Pittsburgh & Lake Erie in January, 1906, and in July, 1920, he was appointed vice-president and general manager of that road, serving in that position continuously until the time of his retirement in May, 1929.

CATERPILLAR TWENTY TRACTOR.—The Caterpillar Tractor Company, Peoria, Ill., has issued a new 40-page booklet describing and illustrating its Model 20 tractor. The booklet is profusely illustrated and is attractively printed.